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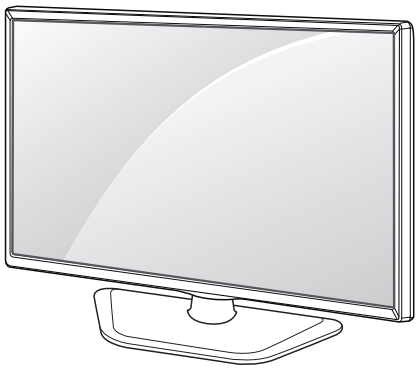
LED TV
SERVICE MANUAL

CHASSIS : LB36B

MODEL : 32LN54** 32LN54**-T*

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL67704507 (1306-REV01)

Printed in Korea

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SCHEMATIC CIRCUIT DIAGRAM .....

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

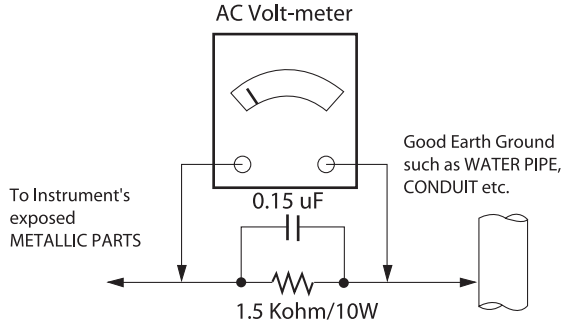
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 MΩ and 5.2 MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5 mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

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SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10 % (by volume) Acetone and 90 % (by volume) isopropyl alcohol (90 % - 99 % strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

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IC Remove/Replacement
Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal
1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement
1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement
1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device
Removal/Replacement
1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement
1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor
Removal/Replacement
1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections
Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

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SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This specification is applied to the LED TV used LB36B chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

1) Temperature: 25 °C ± 5 °C(77 °F ± 9 °F), CST: 40 °C ± 5 °C
2) Relative Humidity: 65 % ± 10 %
3) Power Voltage
   : Standard input voltage (AC 100-240 V~, 50/60 Hz)
   * Standard Voltage of each products is marked by models.
4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
5) The receiver must be operated for about5 minutes prior to the adjustment.

3. Test method

1) Performance: LGE TV test method followed
2) Demanded other specification
   - Safety : CE, IEC specification
   - EMC : CE, IEC

4. Model General Specification

No.	Item	Specification	Remarks
1.	Market	Asia, Oceania, Africa, Middle East (PAL/DVB Market)	
2.	Broadcasting system	1) PAL/SECAM-B/G/D/K 2) PAL-I 3) NTSC-M 4) DVB-T	
3.	Channel Storage	ATV - 135EA, DTV - 1000EA	
4.	Receiving system	Analog : Upper Heterodyne Digital : COFDM(DVB-T)	► DVB-T - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8
5.	Video(Composite Input)	PAL, SECAM, NTSC	4 System : PAL, SECAM, NTSC, PAL60
6.	Component Input	Y/Cb/Cr, Y/Pb/Pr	
7.	HDMI Input	HDMI1-DTV/DVI HDMI2-DTV/DVI	
8.	SPDIF out	SPDIF out	
9	USB Input	For My Media(Movie/Photo/Music List) and SVC	
10	Headphone		

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5. Component Video Input (Y, CB/PB, CR/PR)

No.	Resolution	H-freq(kHz)	V-freq(Hz)	Porposed
1	720×480	15.73	60.00	SDTV, DVD 480i
2	720×480	15.63	59.94	SDTV, DVD 480i
3	720×480	31.47	59.94	480p
4	720×480	31.50	60.00	480p
5	720×576	15.625	50.00	SDTV, DVD 625 Line
6	720×576	31.25	50.00	HDTV 576p
7	1280×720	45.00	50.00	HDTV 720p
8	1280×720	44.96	59.94	HDTV 720p
9	1280×720	45.00	60.00	HDTV 720p
10	1920×1080	31.25	50.00	HDTV 1080i
11	1920×1080	33.75	60.00	HDTV 1080i
12	1920×1080	33.72	59.94	HDTV 1080i
13	1920×1080	56.250	50	HDTV 1080p
14	1920×1080	67.5	60	HDTV 1080p

6. HDMI Input : Refer to adjust specification about EDID data.

6.1. DTV mode

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed
1.	720*480	31.469 / 31.5	59.94 / 60	27.00/27.03	SDTV 480P
2.	720*576	31.25	50	54	SDTV 576P
3.	1280*720	37.500	50	74.25	HDTV 720P
4.	1280*720	44.96 / 45	59.94 / 60	74.17/74.25	HDTV 720P
5.	1920*1080	33.72 / 33.75	59.94 / 60	74.17/74.25	HDTV 1080I
6.	1920*1080	28.125	50.00	74.25	HDTV 1080I
7.	1920*1080	26.97 / 27	23.97 / 24	74.17/74.25	HDTV 1080P
8.	1920*1080	33.716/33.75	29.976/30.00	74.25	HDTV 1080P
9.	1920*1080	56.250	50	148.5	HDTV 1080P
10.	1920*1080	67.43 / 67.5	59.94 / 60	148.35/148.50	HDTV 1080P

6.2. PC mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remark
1.	640*350 @70Hz	31.468	70.09	25.17	EGA	
2.	720*400 @70Hz	31.469	70.08	28.321	DOS	
3.	640*480 @60Hz	31.469	59.940	25.175	VESA(VGA)	
4.	800*600 @60Hz	37.879	60.31	40.000	VESA(SVGA)	
5.	1024*768 @60Hz	48.363	60.00	65.000	VESA(XGA)	
6	1152*864 @60Hz	54.348	60.053	80.002	VESA	
7.	1280*1024 @60Hz	63.981	60.020	108	VESA(SXGA)	FHD only(Support to HDMI-PC)
8.	1360*768 @60Hz	47.712	60.015	85.5	VESA(WXGA)	
9.	1920*1080 @60Hz	67.5	60.0	148.5	WUXGA (Reduced blanking)	FHD only(Support to HDMI-PC)

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ADJUSTMENT INSTRUCTION

1. Application Range

This specification sheet is applied to all of the LED TV with LB36B chassis.

2. Designation

(1) The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
(2) Power adjustment : Free Voltage.
(3) Magnetic Field Condition: Nil.
(4) Input signal Unit: Product Specification Standard.
(5) Reserve after operation: Above 5 Minutes (Heat Run)
Temperature : at 25 °C ± 5 °C
Relative humidity : 65 ± 10 %
Input voltage : 100-220 V~, 60 Hz
(6) Adjustment equipments
: Color Analyzer(CA-210 or CA-110), Service remote control.
(7) Push the “IN STOP" key - For memory initialization.

Case1 : Software version up
1. After downloading S/W by USB , TV set will reboot automatically.
2. Push “In-stop” key.
3. Push “Power on” key.
4. Function inspection
5. After function inspection, Push “In-stop” key.

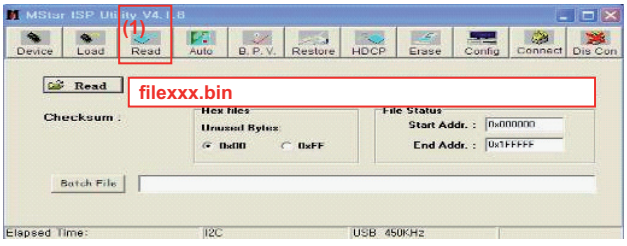
Case2 : Function check at the assembly line
1. When TV set is entering on the assembly line, Push “In-stop” key at first.
2. Push “Power on” key for turning it on.
→ If you push “Power on” key, TV set will recover channel information by itself.
3. After function inspection, Push “In-stop” key.

3. Main PCB check process

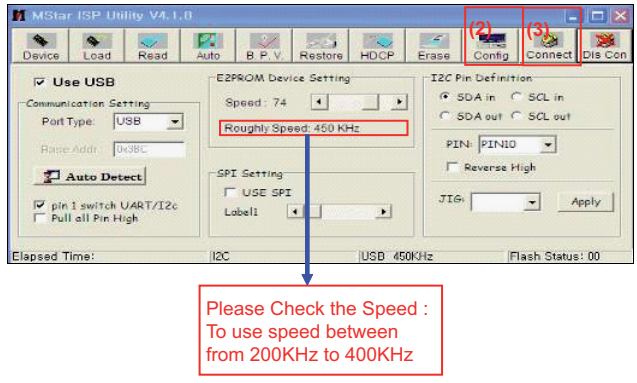
▪ APC - After Manual-Insert, executing APC

* Boot file Download

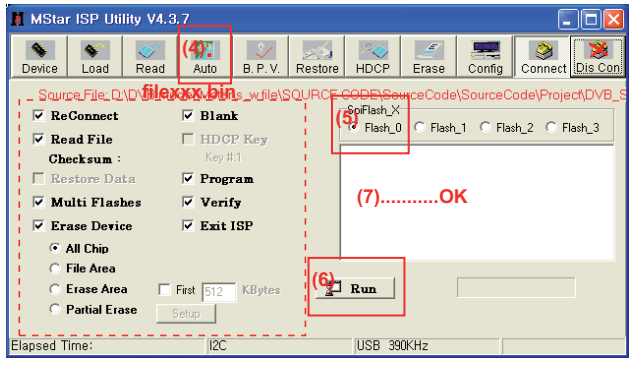
(1) Execute ISP program "Mstar ISP Utility" and then click "Config" tab.
(2) Set as below, and then click "Auto Detect" and check "OK" message.
If "Error" is displayed, check connection between computer, jig, and set.
(3) Click "Read" tab, and then load download file(XXXX.bin) by clicking "Read"



(4) Click "Connect" tab. If "Can't" is displayed, check connection between computer, jig, and set.

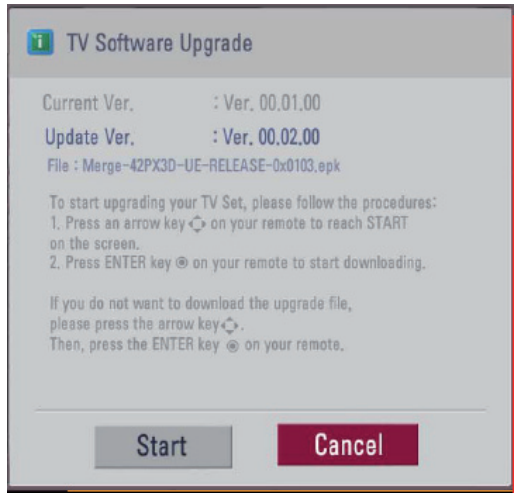


(5) Click "Auto" tab and set as below.
(6) Click "Run".
(7) After downloading, check "OK" message.



* USB DOWNLOAD(*.epk file download)

(1) Put the USB Stick to the USB socket.
(2) Automatically detecting update file in USB Stick.
- If version of update file in USB Stick is lower, it will not work. But version of update file is higher, USB data will be detected automatically.


TV Software Upgrade
Current Ver. : Ver. 00.01.00
Update Ver. : Ver. 00.02.00
File : Merge-42PX3D-UE-RELEASE-0x0103.epk
To start upgrading your TV Set, please follow the procedures:
1. Press an arrow key on your remote to reach START on the screen.
2. Press ENTER key on your remote to start downloading.
If you do not want to download the upgrade file, please press the arrow key.
Then, press the ENTER key on your remote.
Start
Cancel

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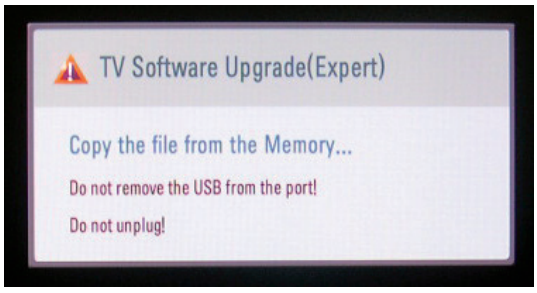
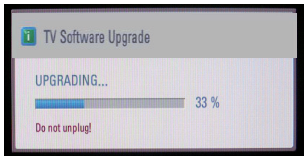
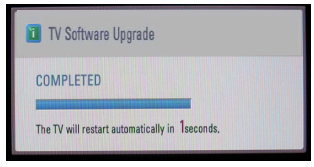
(3) Show the message "Copying files from memory".



(4) Updating is starting.





(5) Updating Completed, The TV will restart automatically.
(6) If your TV is turned on, check your updated version and Tool option. (explain the Tool option, next stage)
* If updated version is higher than what TV has, the TV can lost all channel data. In this case, you have to channel recover. If all channel data is cleared, you didn't have a DTV/ATV test on production line.

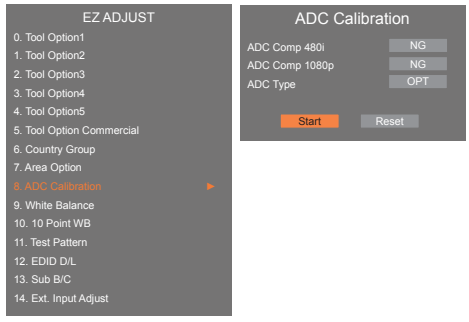
* After downloading, have to adjust Tool Option again.
(1) Push "IN-START" key in service remote control.
(2) Select "Tool Option 1" and push "OK" key.
(3) Punch in the number. (Each model has their number)
(4) Completed selecting Tool option.

* RS-232C Connection Method.
Connection : PCBA (USB Port) → USB to Serial Adapter (UC-232A) → RS-232C cable → PC(RS-232C port)
● Product name of USB to Serial Adapter is UC-232A.

4. ADC Process

4.1. ADC

- Enter Service Mode by pushing "ADJ" key,
- Enter Internal ADC mode by pushing "►" key at "8. ADC Calibration".



<Caution> Using "P-ONLY" key of the Adjustment remote control, power on TV.

* ADC Calibration Protocol (RS232)

NO	Item	CMD 1	CMD 2	Data 0		
Enter Adjust MODE	Adjust 'Mode In'	A	A	0	0	When transfer the 'Mode In', Carry the command.
ADC adjust	ADC Adjust	A	D	1	0	Automatically adjustment (The use of a internal pattern)

Adjust Sequence
- aa 00 00 [Enter Adjust Mode]
- xb 00 40 [Component1 Input (480i)]
- ad 00 10 [Adjust 480i Comp1]
- xb 00 60 [RGB Input (1024*768)]
- ad 00 10 [Adjust 1024*768 RGB]
- aa 00 90 End Adjust mode

* Required equipment : Adjustment remote control.

4.2. Function Check

4.2.1. Check display and sound

■ Check Input and Signal items.
(1) TV
(2) AV (CVBS)
(3) COMPONENT (480i)
(4) HDMI
* Display and Sound check is executed by Remote control.

<Caution> Not to push the "INSTOP" key after completion if the function inspection.

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5. Total Assembly line process

5.1. Adjustment Preparation

▪ W/B Equipment condition
CA210: CH14, Test signal: Inner pattern(80IRE)-LED Module
▪ Above 5 minutes H/run in the inner pattern. ("power on" key of Adjustment remote control)

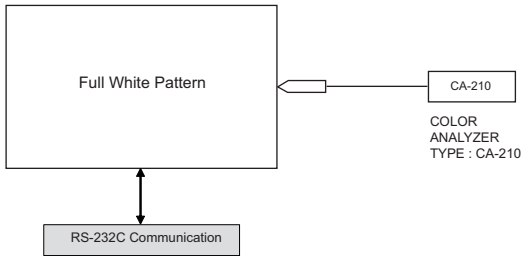
* The spec of color temperature and coordinate.

Mode	Color Temp	Color coordinate	Remark
Cool (C50)	13,000 K	X=0.274 (±0.002) Y=0.280 (±0.002)	<Test Signal> - Inner pattern for W/B adjust - External white pattern (80IRE, 204gray)
Medium(0)	9,300 K	X=0.290 (±0.002) Y=0.300 (±0.002)	
Warm(W50)	6,500 K	X=0.318 (±0.002) Y=0.336 (±0.002)	

▪ ROW LED W/B Table in process of aging time (Only LGD ROW module)

S7LR2	Aging time (Min)	Cool		Medium		Warm	
		X	y	x	y	x	y
1	0-2	277	284	293	304	319	338
2	3-5	276	282	292	302	318	336
3	6-9	275	280	291	300	317	334
4	10-19	273	277	289	297	315	331
5	20-35	272	276	288	296	314	330
6	36-49	271	275	287	295	313	329
7	50-79	270	274	286	294	312	328
8	Over 80	269	273	285	293	311	327

* Connecting picture of the measuring instrument
(On Automatic control)
Inside Pattern is used when W/B is controlled. Connect to auto controller or push Adjustment Remote control POWER ON → Enter the mode of White-Balance, the pattern will come out.



* Auto-control interface and directions

(1) Adjust in the place where the influx of light like floodlight around is blocked. (Illumination is less than 10 lux).
(2) Adhere closely the Color analyzer(CA210) to the module less than 10 cm distance, keep it with the surface of the Module and Color analyzer's prove vertically.(80° ~ 100°).
(3) Aging time
- After aging start, keep the power on (no suspension of power supply) and heat-run over 5 minutes.
- Using 'no signal' or 'POWER ONLY' or the others, check the back light on.

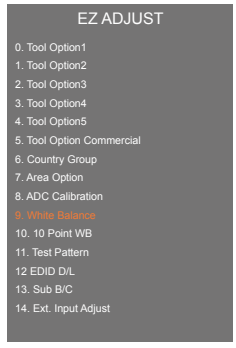
▪ Auto adjustment Map(RS-232C)
RS-232C COMMAND
[CMD ID DATA]
Wb 00 00 White Balance Start
Wb 00 ff White Balance End

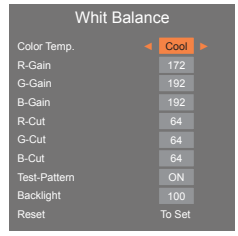
	RS-232C COMMAND [CMD ID DATA]			MIN	CENTER (DEFAULT)			MAX
	Cool	Mid	Warm		Cool	Mid	Warm	
R Gain	jg	Ja	jd	00	172	192	192	192
G Gain	jh	Jb	je	00	172	192	192	192
B Gain	ji	Jc	jf	00	192	192	172	192
R Cut					64	64	64	128
G Cut					64	64	64	128
B Cut					64	64	64	128

<Caution>
Color Temperature : COOL, Medium, Warm.
One of R Gain/G Gain/ B Gain should be kept on 0xC0, and adjust other two lower than C0.(When R/G/B Gain are all C0, it is the FULL Dynamic Range of Module)

* Manual W/B process using adjust Remote control.

■ Color analyzer(CA100+, CA210) should be used in the calibrated ch by CS-1000.
■ Operate the zero-calibration of the CA100+ or CA-210, then stick sensor to the module when adjusting.
■ After enter Service Mode by pushing “ADJ” key,
■ Enter White Balance by pushing “►” key at “9. White Balance”.





■ For manual adjustment, it is also possible by the following sequence.
(1) Set TV in Adj. mode using “P-ONLY” key on remote controller and then operate heat run longer than 15 minutes.(If not executed this step, the condition for W/B may be different.)
(2) Push “Exit” key.
(3) Enter White Balance mode by pushing the ADJ key and select “9. White Balance”. When KEY (►) is pressed, 206 Gray internal pattern will be displayed.
(4) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface
(5) Select each items (Red/Green/Blue Gain) using ▲/▼(CH +/-) key on Remote control.
(6) Adjust R/ G/ B Gain using ◄/►(VOL +/-) key on R/C.

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(7) Adjust three modes all (Cool / Medium / Warm)
- For All model w/o LS345
  Fix the one of R/G/B gain and change the others
- For G-FIX model
  Cool Mode
  1) Fix the one of R/G/B gain to 192 (default data) and decrease the others. (If G gain is adjusted over 172 and R and B gain less than 192 , Adjust is O.K.)
  2) If G gain is less than 172, Increase G gain by up to 172, and then increase R gain and G gain same amount of increasing G gain.
  3) If R gain or B gain is over 255, readjust G gain less than 172, Conform to R gain is 255 or B gain is 255
  Medium / Warm Mode - Fix the one of R/G/B gain to 192 (default data) and decrease the others.

(8) When adjustment is completed, exit adjustment mode using EXIT key on Remote control.

* CASE Cool
First adjust the coordinate far away from the target value(x, y).
1) x, y > target
   i) Decrease the R, G.
2) x, y < target
   i) First decrease the B gain,
   ii) Decrease the one of the others.
3) x > target, y < target
   i) First decrease B, so make y a little more than the target.
   ii) Adjust x value by decreasing the R.
4) x < target, y > target
   i) First decrease B, so make x a little more than the target.
   ii) Adjust x value by decreasing the G.

* After You finish all adjustments, Press “In-start” button and compare Tool option and Area option value with its BOM, if it is correctly same then unplug the AC cable.
  If it is not same, then correct it same with BOM and unplug AC cable.
  For correct it to the model’s module from factory JIG model.
* Push the “IN STOP" key after completing the function inspection.

5.2. DDC EDID Write (HDMI 256Byte)

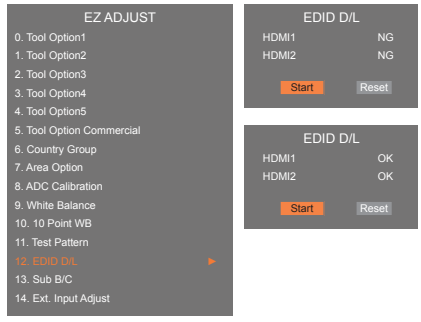
■ Connect HDMI Signal Cable to HDMI Jack.
■ Write EDID DATA to EEPROM(24C02) by using DDC2B protocol.
■ Check whether written EDID data is correct or not.
* For SVC main Assembly, EDID have to be downloaded to Insert Process in advance.

5.3. EDID DATA

1) All Data : HEXA Value
2) Changeable Data :
   *: Serial No : Controlled / Data:01
   **: Month : Controlled / Data:00
   ***: Year : Controlled
   ****: Check sum

- Auto Download

■ After enter Service Mode by pushing “ADJ” key,
■ Enter EDID D/L mode.
■ Enter “START” by pushing “OK” key.



[Caution]
* Use the proper signal cable for EDID Download
  - Analog EDID : Pin3 exists
  - Digital EDID : Pin3 exists

* Edid data and Model option download (RS232)

NO	Item	CMD 1	CMD 2	Data 0		
Enter download Mode	Download ‘Mode In’	A	A	0	0	When transfer the ‘Mode In’, Carry the command.
EDID data and Model option download	ADC Adjust	A	E	00	10	Automatically adjustment (The use of a internal pattern)

No.	Item	Condition	Hex Data
1	Manufacturer ID	GSM	1E6D
2	Version	Digital : 1	01
3	Revision	Digital : 3	03

(1) HD HDMI EDID DATA

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	ff	ff	ff	ff	ff	ff	00	1E	6D	a		b			
10	c		01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	01	01
30	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
40	36	00	40	84	63	00	00	1E	64	19	00	40	40	00	26	30
50	18	88	03	06	40	84	63	00	00	18	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	d			
70	d														01	e
80	02	03	22	F1	4E	10	1F	04	93	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	f					
A0	80	1E	01	1D	80	18	71	1C	16	20	58	2C	25	00	A0	5A
B0	00	00	00	9E	01	1d	00	72	51	D0	1E	20	6E	28	55	00
C0	20	C2	31	00	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E
D0	96	00	A0	5A	00	00	00	18	02	3A	80	18	71	38	2D	40
E0	58	2C	45	00	A0	5A	00	00	00	1E	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	e

(2) Detail EDID Options are below
a. Product ID

Model Name	HEX	EDID Table	DDC Function
HD/FHD Model	0001	01 00	Analog/Digital

b. Serial No: Controlled on production line.
c. Month, Year: Controlled on production line:
ex) Week : '01' -> '01'
Year : '2012' -> '16' fix

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d. Model Name(Hex):

cf) TV set's model name in EDID data is below.

MODEL NAME	MODEL NAME(HEX)
LG TV	00 00 00 FC 00 4C 47 20 54 56 0A 20 20 20 20 20 20 20 20 (LG TV)

e. Checksum: Changeable by total EDID data.

EDID C/S data		HD (HDMI)
Check Sum (Hex)	Block 0	A4
	Block 1	5B (HDMI1)
		4B (HDMI2)

f. Vendor Specific

- FHD 8bit model

Input	Model name(HEX)
HDMI1	67030C001000
HDMI2	67030C002000
HDMI3	67030C003000

5.4. Outgoing condition Configuration

■ When pressing IN-STOP key by Service remote control, Red LED are blinked alternatively. And then automatically turn off. (Must not AC power OFF during blinking)

5.5. GND and HI-POT Test

5.5.1. GND & HI-POT auto-check preparation

- Check the POWER CABLE and SIGNAL CABE insertion condition.

5.5.2. GND & HI-POT auto-check

(1) Pallet moves in the station.(POWER CORD / AV CORD is tightly inserted)
(2) Connect the AV JACK Tester.
(3) Controller (GWS103-4) on.
(4) GND Test (Auto)
- If Test is failed, Buzzer operates.
- If Test is passed, execute next process(Hi-pot test). (Remove A/V CORD from A/V JACK BOX)

(5) HI-POT test (Auto)
- If Test is failed, Buzzer operates.
- If Test is passed, GOOD Lamp on and move to next process automatically.

5.5.3. Checkpoint

(1) Test voltage
1) 3 Poles
- GND: 1.5KV/min at 100 mA
- SIGNAL: 3KV/min at 100 mA

2) 2 Poles
- SIGNAL: 3 KV/min at 100 mA

(2) TEST time: 1 second
(3) TEST POINT
1) 3 Poles
- GND Test = POWER CORD GND and SIGNAL CABLE GND.
- Hi-pot Test = POWER CORD GND and LIVE & NEUTRAL.

2) 2 Poles
- Hi-pot Test = Accessible Metal and LIVE & NEUTRAL.

(4) LEAKAGE CURRENT: At 0.5mArms

6. Local Dimming Function Check

Step1) Turn on TV.
Step2) Press "P-only" key, enter to power only mode and escape the "P-only" Mode by pressing "Exit" key.
Step3) Press "Tilt" key, entrance to Local Dimming mode.
Step4) At the Local Dimming mode, module Edge Backlight moving Top to bottom Back light of module moving.
Step5) confirm the Local Dimming mode.
Step6) Press "Exit" key.

7. 3D function test

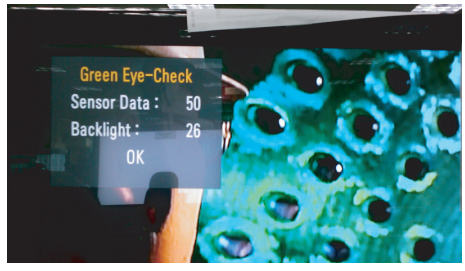
(Pattern Generator MSHG-600, MSPG-6100[Support HDMI1.4])
* HDMI mode No. 872 , pattern No.83
(1) Please input 3D test pattern like below.

(2) When 3D OSD appear automatically, then select OK button.

(3) Don't wear a 3D Glasses, check the picture like below.

8. EYE-Q function check

Step1) Turn on TV
Step 2) Press EYE key of Adj. R/C.
Step 3) Cover the Eye Q sensor on the front of the using your hand and wait for 6 seconds.
Step 4) Confirm that R/G/B value is lower than 10 of the "Raw Data(Sensor data, Back light)". If after 6 seconds, R/G/ B value is not lower than 10, replace Eye Q sensor
Step 5) Remove your hand from the Eye Q sensor and wait for 6 seconds.
Step 6) Confirm that "ok" pop up. If change is not seen, replace Eye Q sensor.



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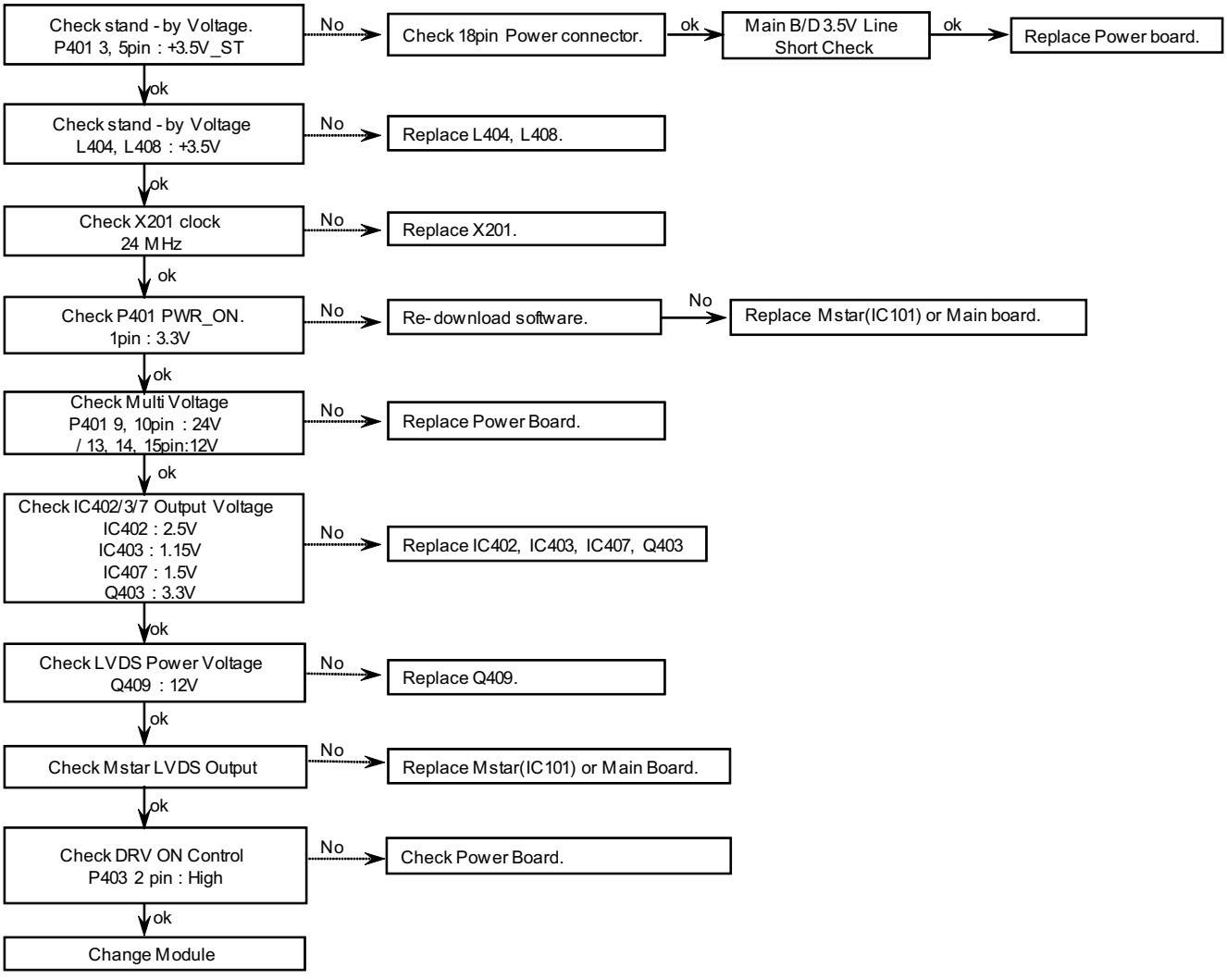
TROUBLESHOOTING

1. Power-up boot check



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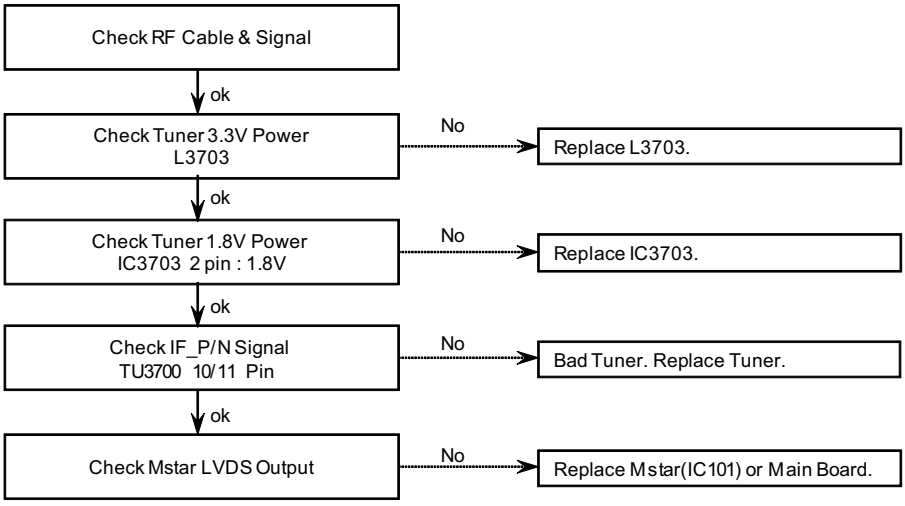
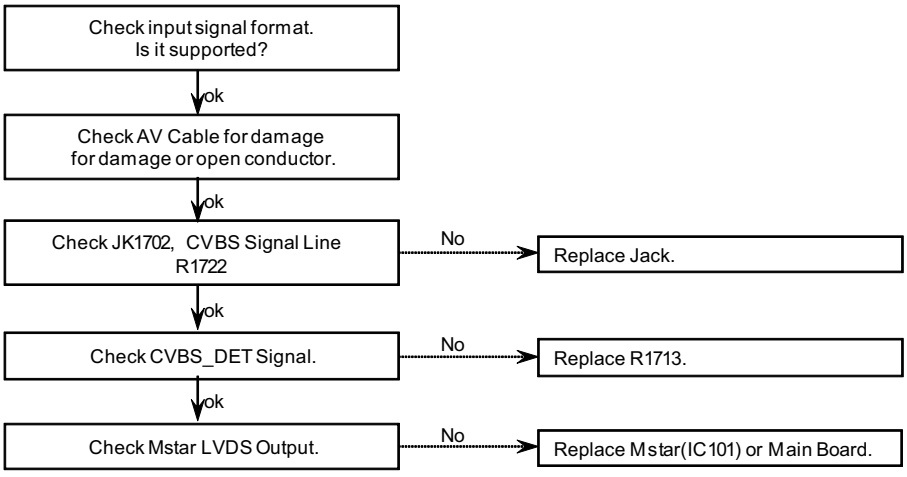
2. Digital/Analog TV Video



3. AV Video



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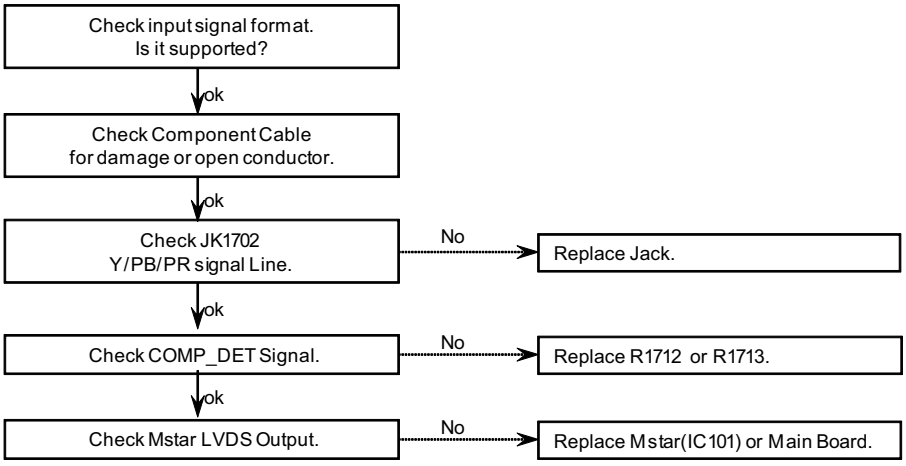
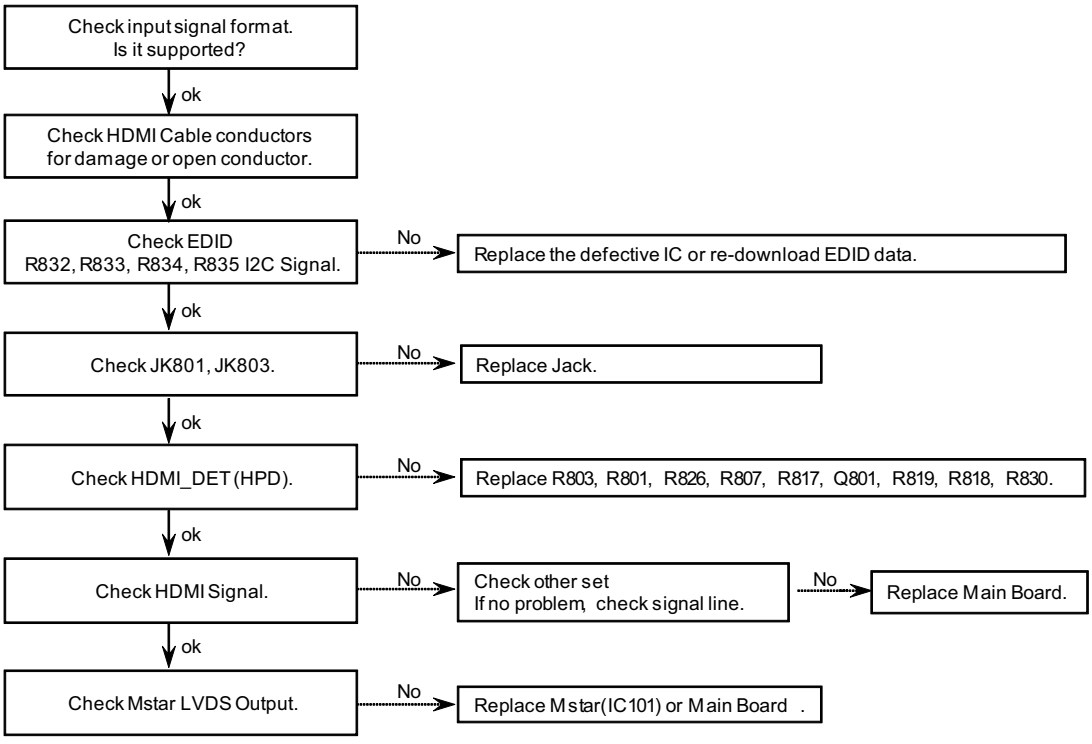
4. Component Video



5. HDMI Video



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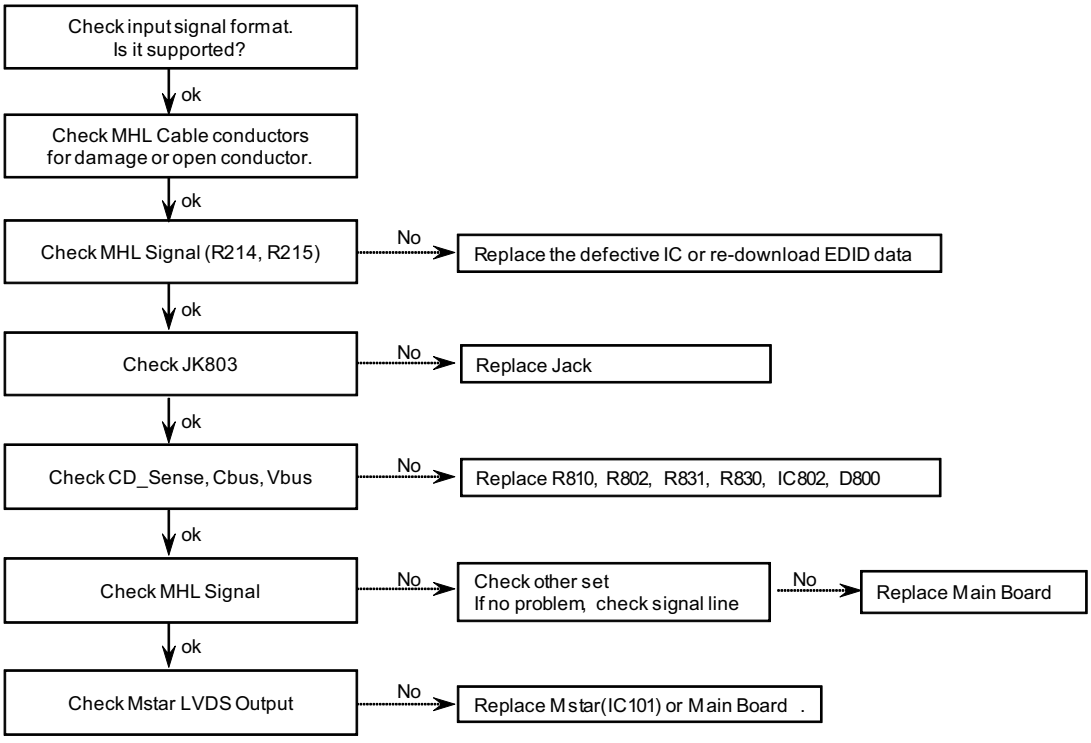
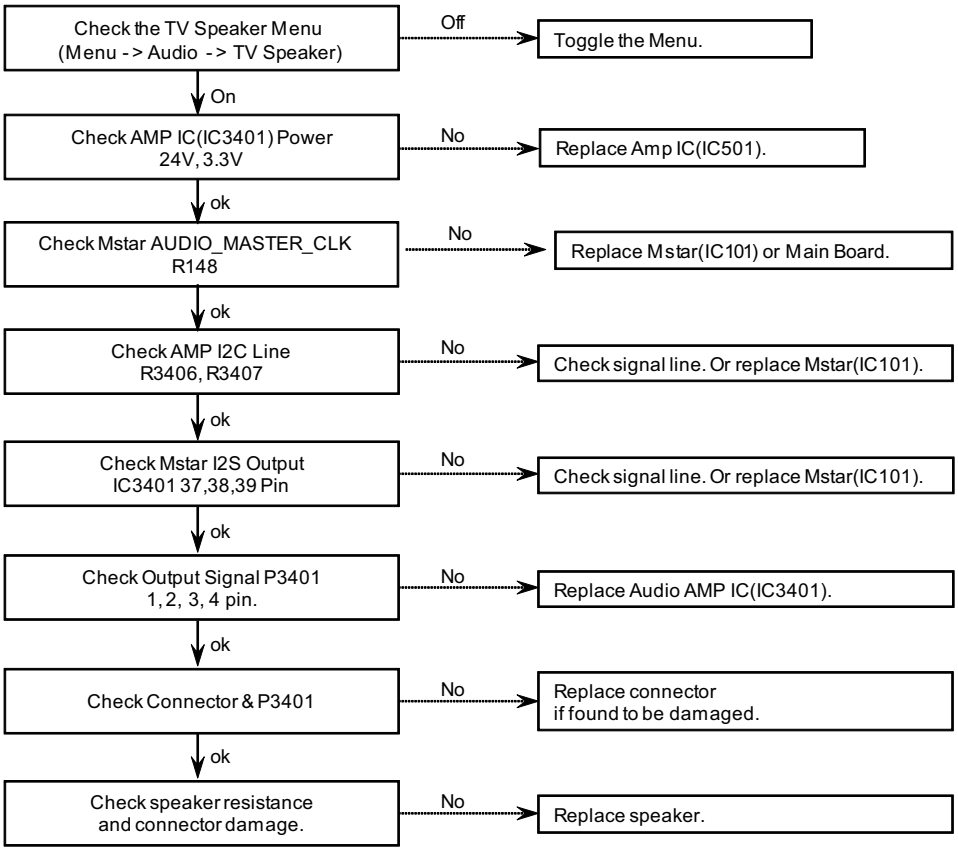
6. MHL Video



7. All Source Audio



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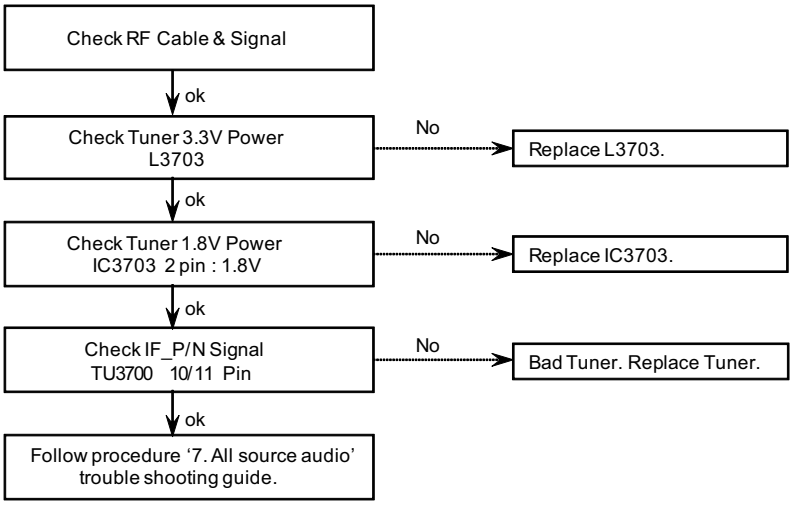
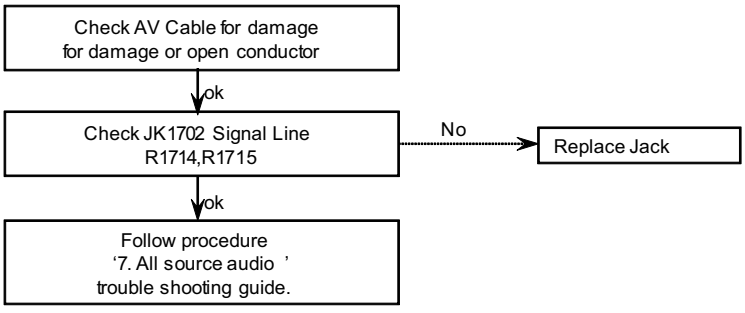
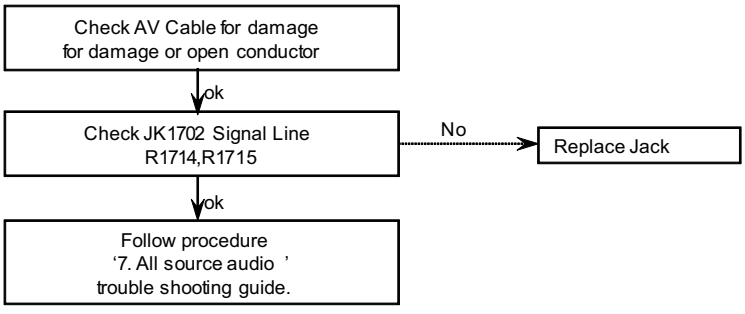
8. Digital/Analog TV Audio



9. AV Audio



10. Component Audio



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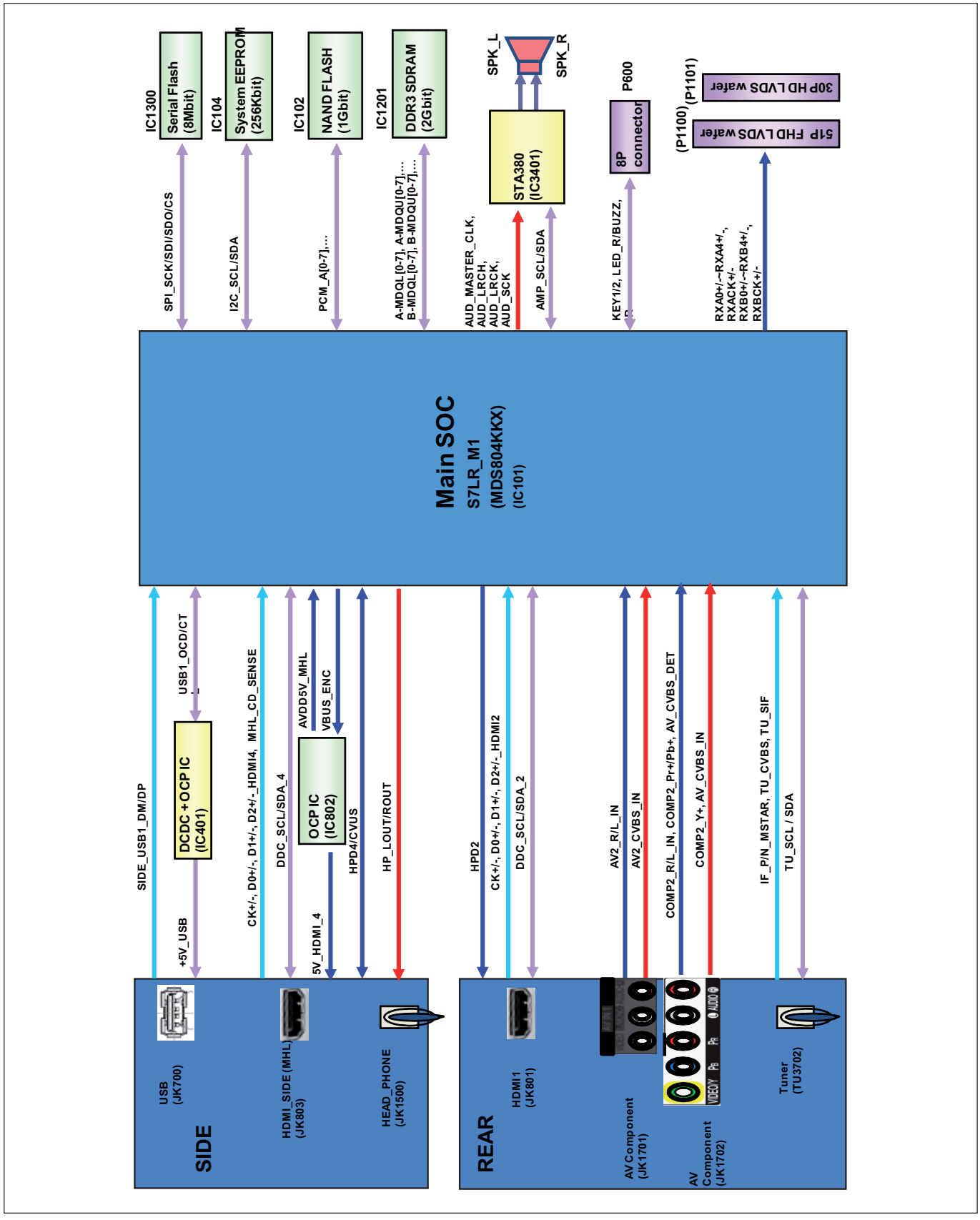
BLOCK DIAGRAM

■ ERRC



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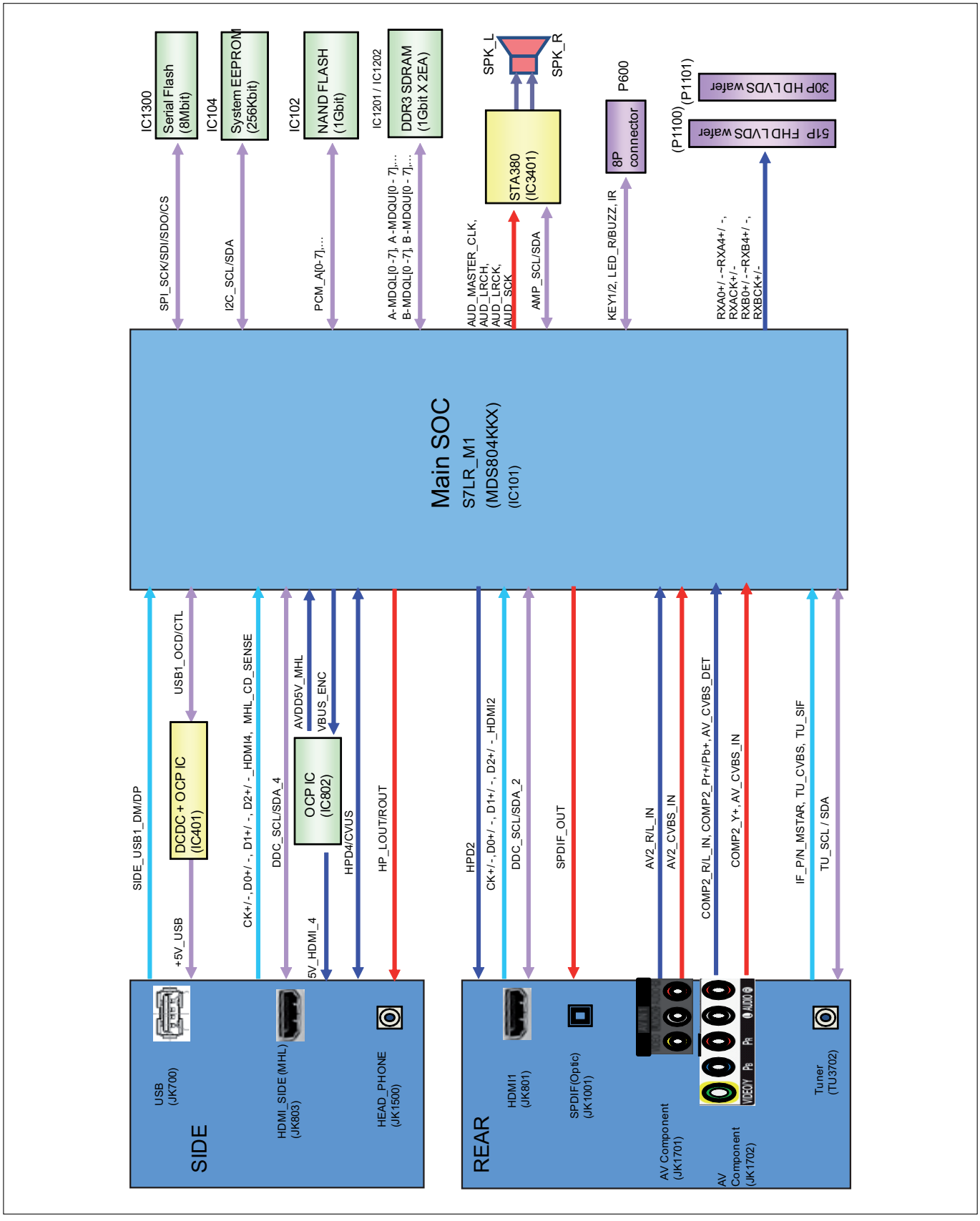
■ Non ERRC



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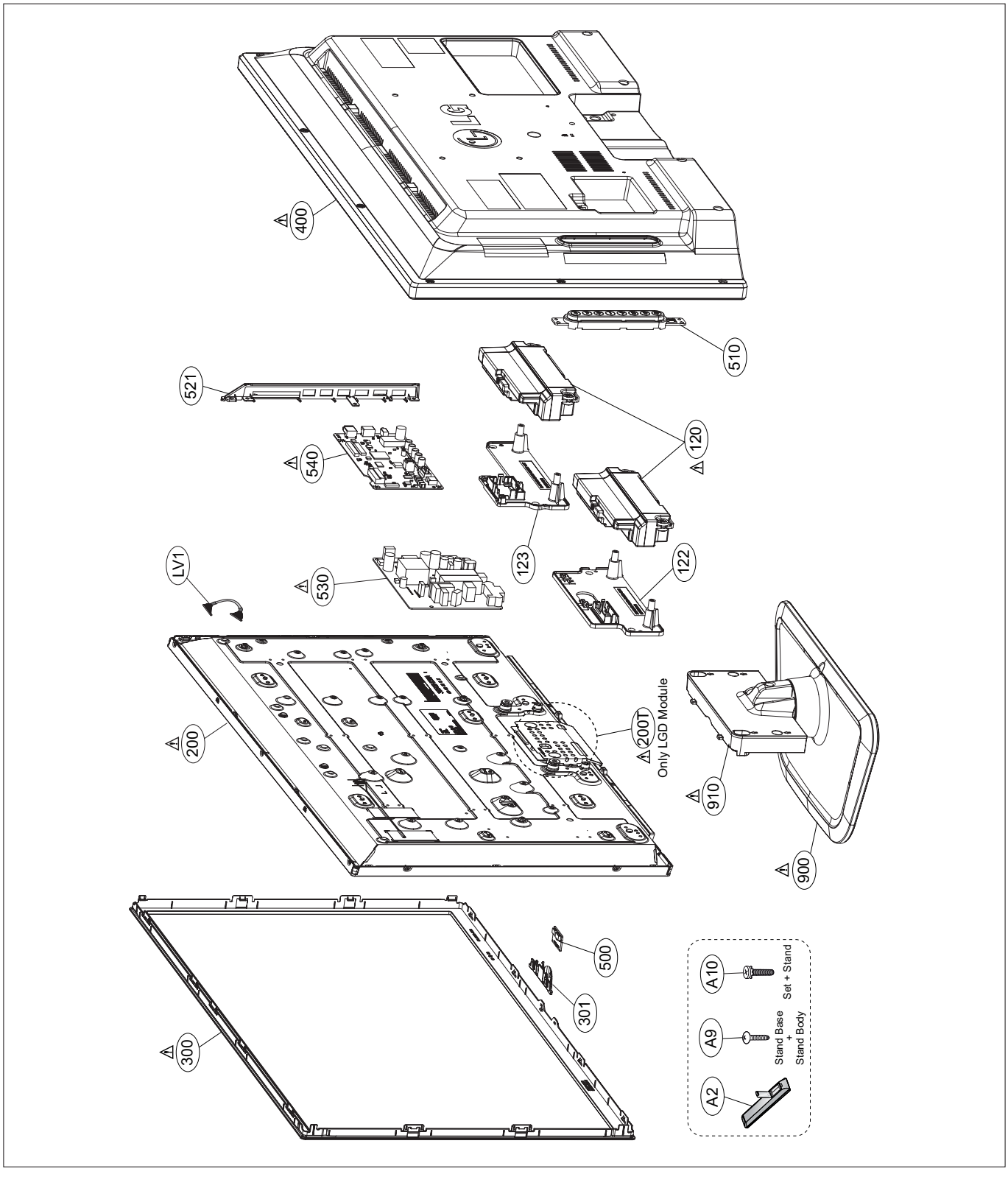
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.



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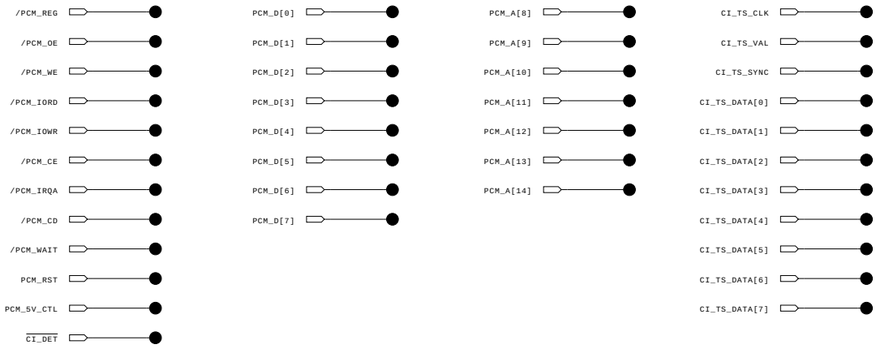
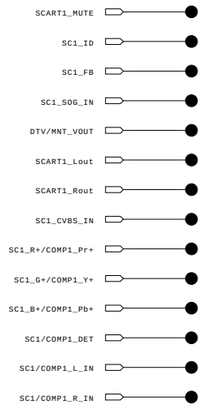
TP for NON-EU models(except EU and China)

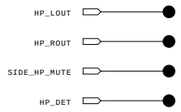
TP for CI slot



TP for SCART



TP for Headphone



TP for S2

TP for FE_TS_DATA

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	NC4_S7LRM	DATE	2012.07.02
BLOCK	TP_NON_EN	SHEET	3 /

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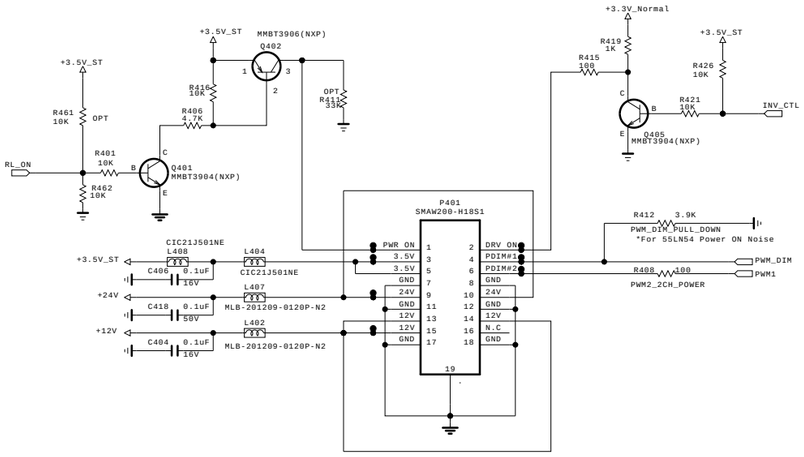
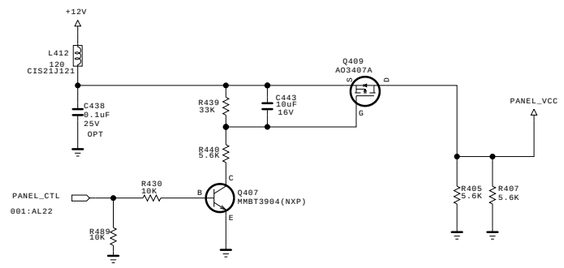
L13 POWER BLOCK (POWER DETECT 2)

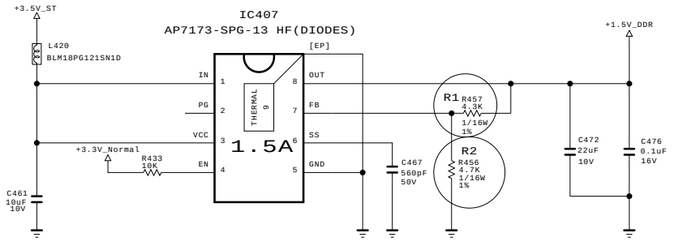
FROM LIPS & POWER B/D



PANEL_POWER

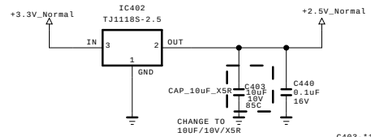


+1.5V_DDR



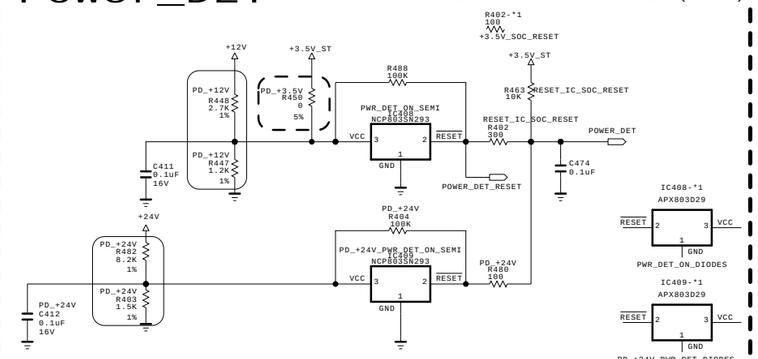
Vout=0.8*(1+R1/R2)=1.5319

+2.5V_Normal

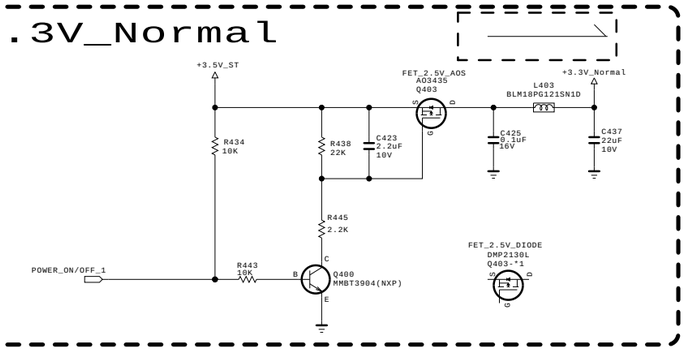


Power_DET

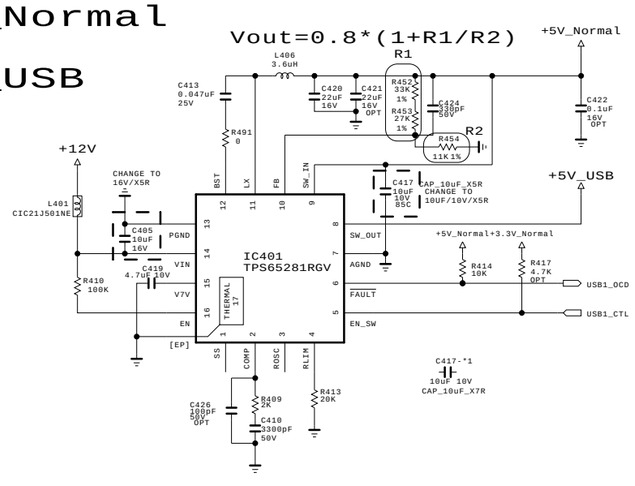
+3.5V_ST --> 3.375V --> 3.46V
+24V --> 3.78V --> 3.92V (3.79V)
+12V --> 3.58V --> 3.82V (3.68V)



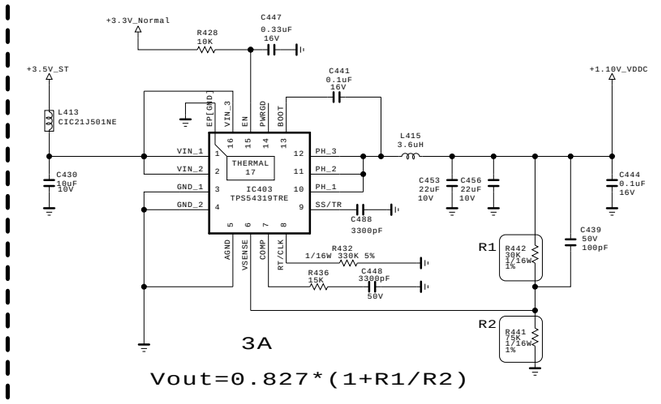
+3.3V_Normal



+5V_Normal & +5V_USB



S7LR core 1.15V volt



Vout=0.827*(1+R1/R2)

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MODEL	NC4_S7LRM	DATE	2012/09/19
BLOCK	Power_PD2	SHEET	4

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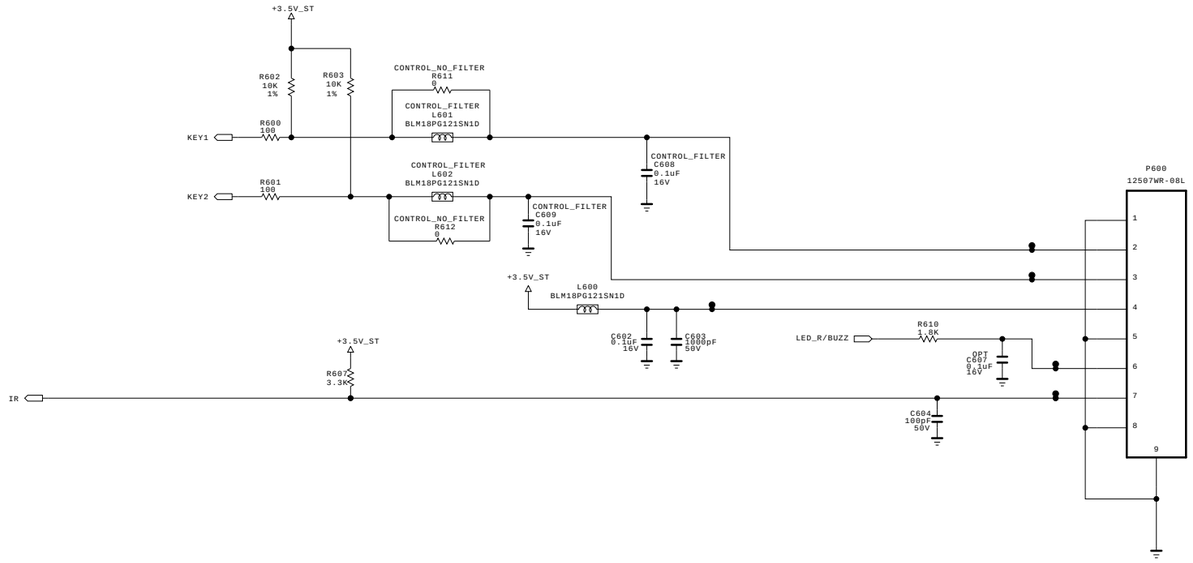
IR/LED and Control



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MODEL	NC4_S7LRM	DATE	2012/07/18
BLOCK	IR/CONTROL	SHEET	6 /

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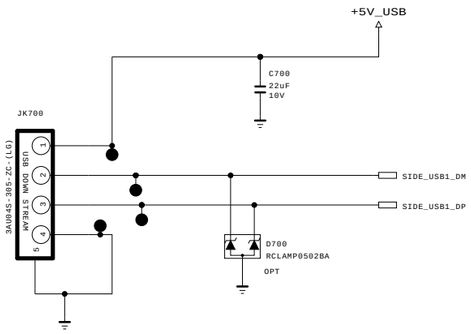
USB (SIDE)



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MODEL	NC4_S7LRM	DATE	12/06/20
BLOCK	USB	SHEET	7

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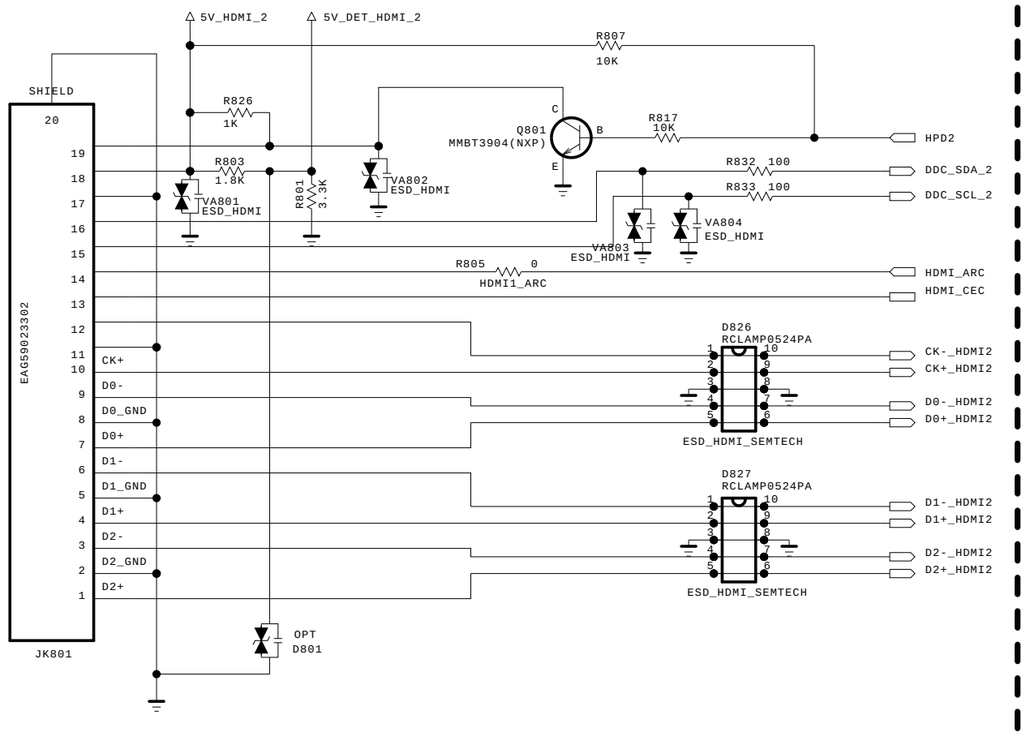
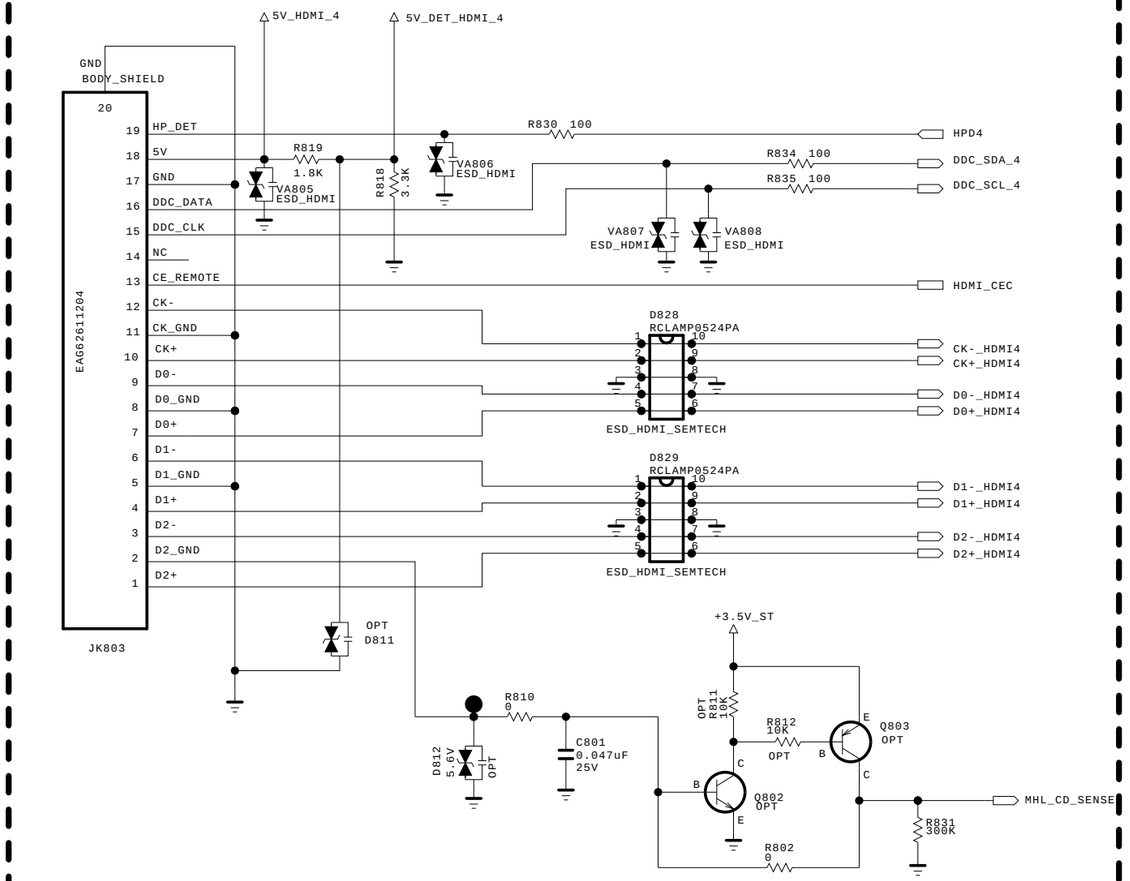
HDMI (REAR 1 / SIDE 1 MHL)

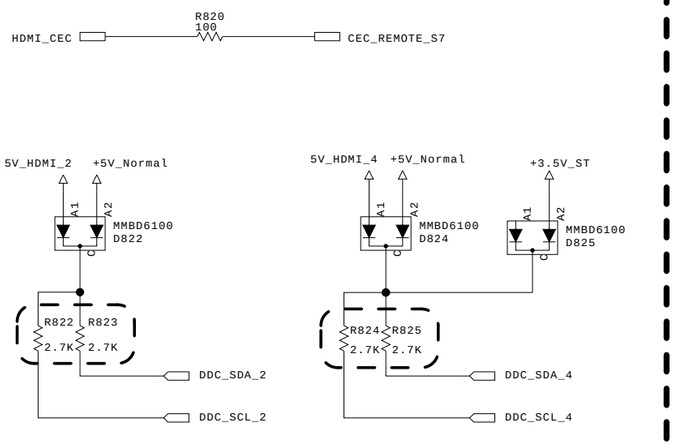
HDMI_1

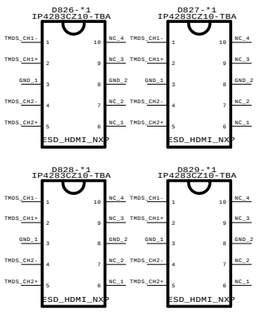


SIDE_HDMI (MHL)

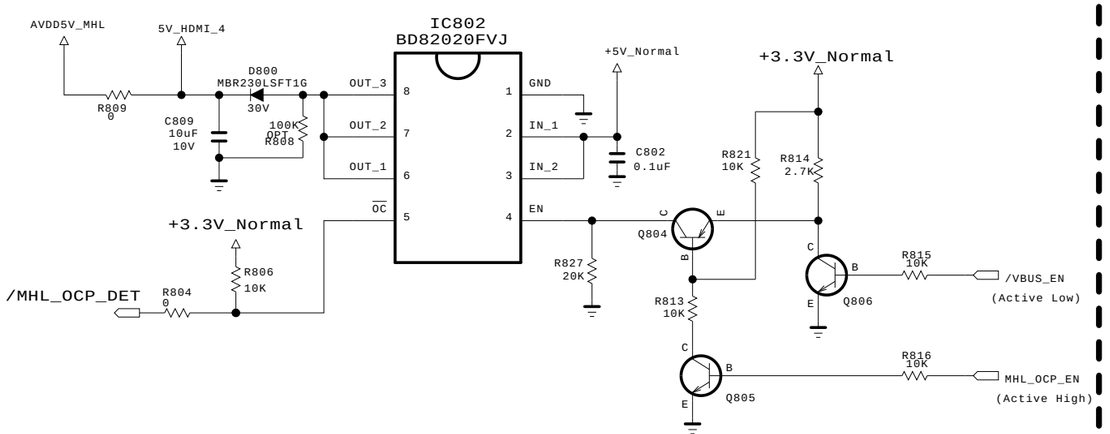


CEC





MHL OCP



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MODEL	NC4_S7LRM	DATE	2012/07/12
BLOCK	HDMI_R1_S1	SHEET	8

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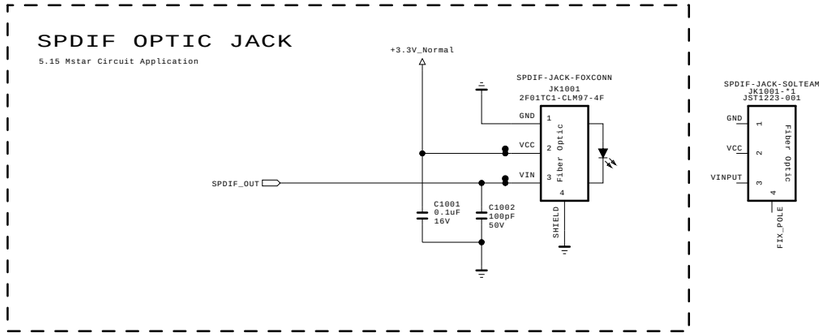
SPDIF



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MODEL	NC4_S7LRM	DATE	12/06/12
BLOCK	SPDIF	SHEET	10

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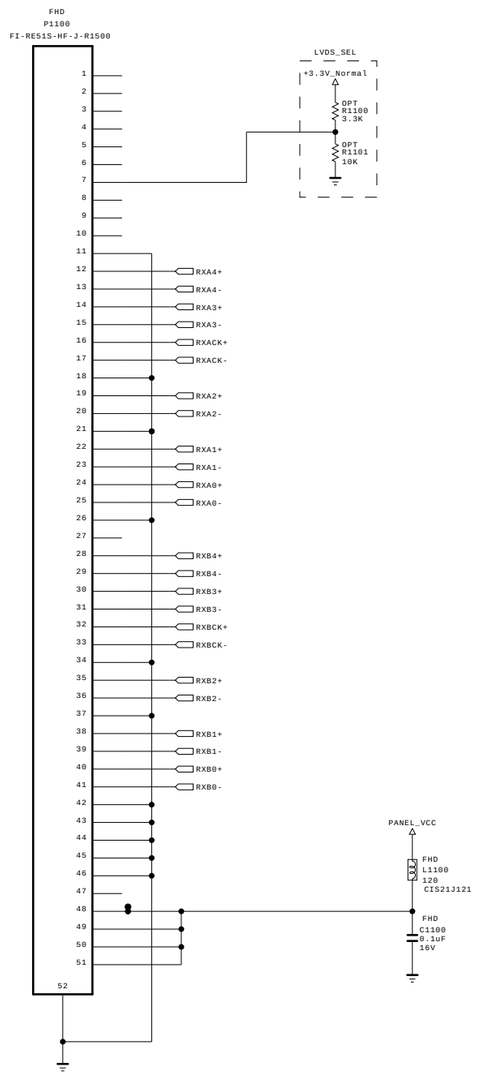
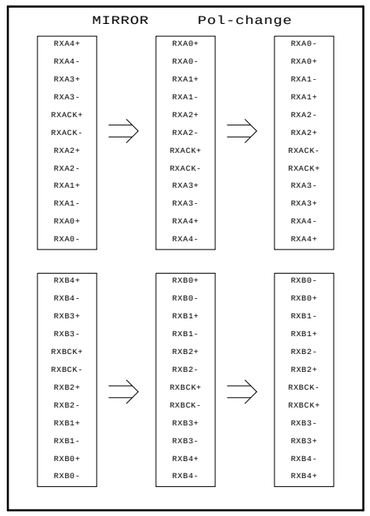
LVDS (NON EU)

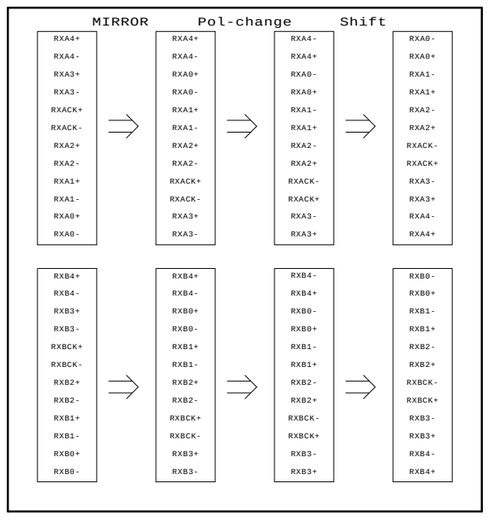
[51Pin LVDS Connector] (For FHD 60Hz)



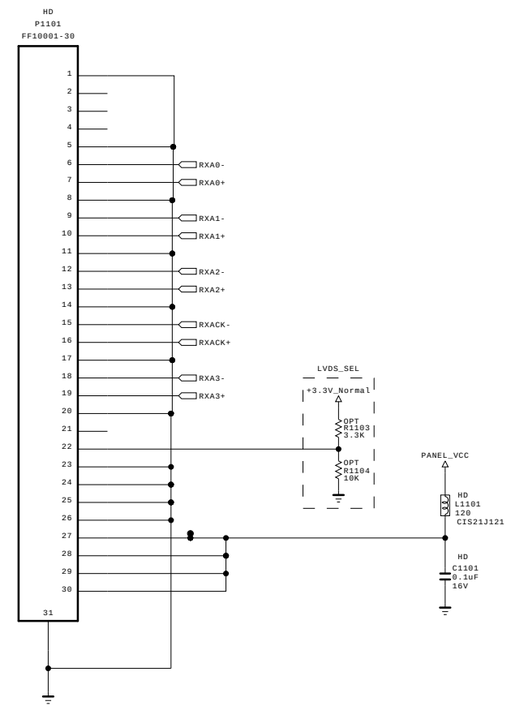
FOR FHD REVERSE(10bit) Change in S7LR


MIRROR
Pol-change
RXA4+ RXA4- RXA3+ RXA3- RXACK+ RXACK- RXA2+ RXA2- RXA1+ RXA1- RXA0+ RXA0-
RXA0+ RXA0- RXA1+ RXA1- RXA2+ RXA2- RXACK+ RXACK- RXA3+ RXA3- RXA4+ RXA4-
RXA0- RXA0+ RXA1- RXA1+ RXA2- RXA2+ RXACK- RXACK+ RXA3- RXA3+ RXA4- RXA4+
RXB4+ RXB4- RXB3+ RXB3- RXBCK+ RXBCK- RXB2+ RXB2- RXB1+ RXB1- RXB0+ RXB0-
RXB0+ RXB0- RXB1+ RXB1- RXB2+ RXB2- RXBCK+ RXBCK- RXB3+ RXB3- RXB4+ RXB4-
RXB0- RXB0+ RXB1- RXB1+ RXB2- RXB2+ RXBCK- RXBCK+ RXB3- RXB3+ RXB4- RXB4+

FOR FHD REVERSE(8bit) Change in S7LR


MIRROR
Pol-change
Shift
RXA4+ RXA4- RXA3+ RXA3- RXACK+ RXACK- RXA2+ RXA2- RXA1+ RXA1- RXA0+ RXA0-
RXA4+ RXA4- RXA0+ RXA0- RXA1+ RXA1- RXA2+ RXA2- RXACK+ RXACK- RXA3+ RXA3-
RXA4- RXA4+ RXA0- RXA0+ RXA1- RXA1+ RXA2- RXA2+ RXACK- RXACK+ RXA3- RXA3+
RXA0- RXA0+ RXA1- RXA1+ RXA2- RXA2+ RXACK- RXACK+ RXA3- RXA3+ RXA4- RXA4+
RXB4+ RXB4- RXB3+ RXB3- RXBCK+ RXBCK- RXB2+ RXB2- RXB1+ RXB1- RXB0+ RXB0-
RXB4+ RXB4- RXB0+ RXB0- RXB1+ RXB1- RXB2+ RXB2- RXBCK+ RXBCK- RXB3+ RXB3-
RXB4- RXB4+ RXB0- RXB0+ RXB1- RXB1+ RXB2- RXB2+ RXBCK- RXBCK+ RXB3- RXB3+
RXB0- RXB0+ RXB1- RXB1+ RXB2- RXB2+ RXBCK- RXBCK+ RXB3- RXB3+ RXB4- RXB4+

[30Pin LVDS Connector] (For HD 60Hz_Normal)



EU pin assign is different from NON EU.
Because of position of HD wafer.

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MODEL	NC4_S7LRM	DATE	2012/09/19
BLOCK	LVDS_NON_EU	SHEET	11

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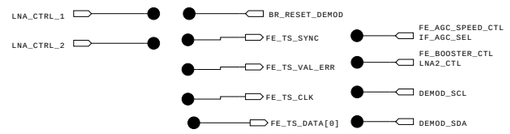
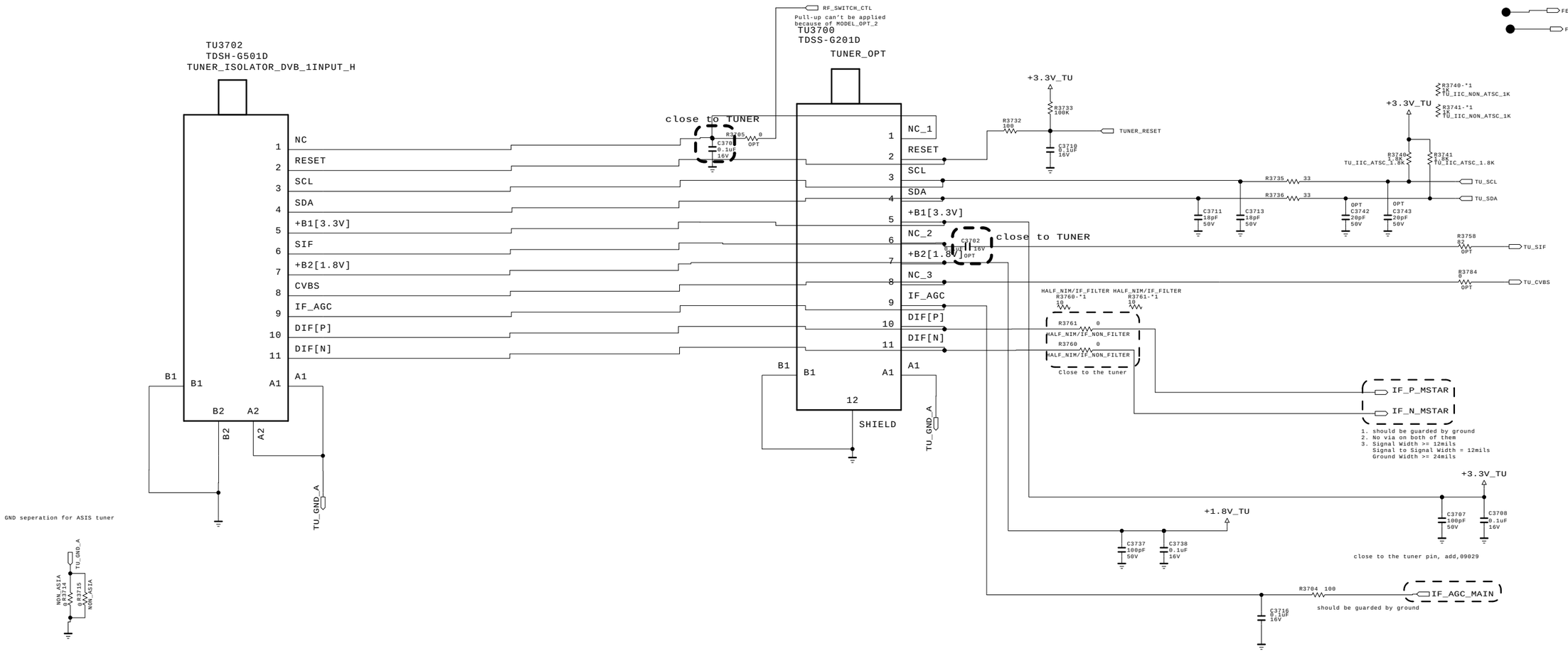
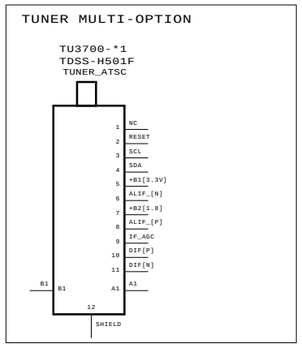
GLOBAL tuner block except EU and China





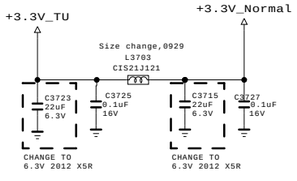
GND seperation for ASIS tuner

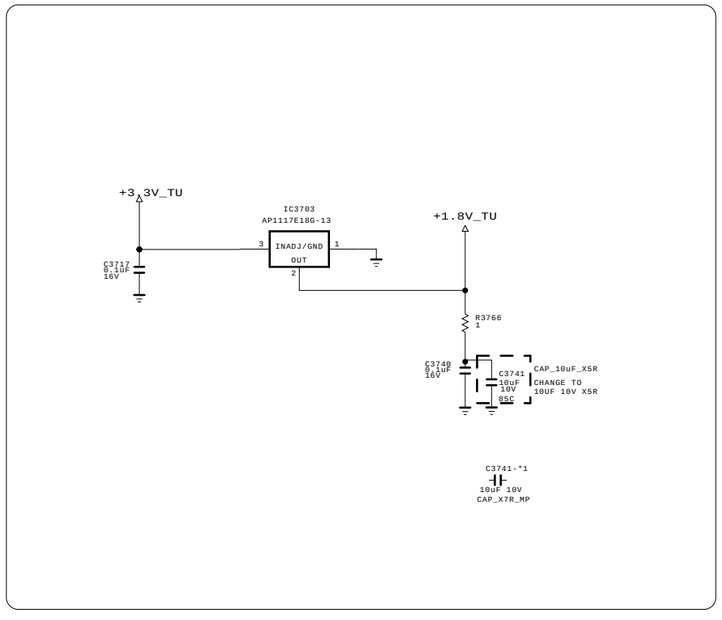
TUNER MULTI-OPTION



TW_FE_LNA FILTER_SETTING

Frequence	CTRL_1	CTRL_2	Filter_Type
54MHz~350MHz	1	0	LPF
350Hz~450MHz	0	0	Through
450Hz~870MHz	0	1	HPF





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MODEL	NC4_S7LRM	DATE	2012.06.21
BLOCK	TUNER_NON_EU	SHEET	14

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COMPONENT1 & AV(COMMON), AV2

AV2

COMPONENT
&
AV1

COMP_AV1/2
JK1701
PPJ248-01

7C	[RD3]E-LUG
6C	[RD3]C-SPRING
4C	[RD3]CONTACT
5B	[WH2]C-SPRING
4A	[YL]CONTACT
6A	[YL]C-SPRING
7A	[YL]E-LUG

COMP_AV1
JK1702
PPJ245-01

7E	[RD2]E-LUG
6E	[RD2]C-SPRING
4E	[RD2]CONTACT
5D	[WH]C-SPRING
4C	[RD1]CONTACT
6C	[RD1]C-SPRING
8C	[RD1]E-LUG-S
5B	[BL]C-SPRING
4A	[GN]CONTACT
6A	[GN]C-SPRING
7A	[GN]E-LUG

7H	[RD2]E-LUG
6H	[RD2]C-SPRING
4H	[RD2]CONTACT
5G	[WH1]C-SPRING
4F	[RD1]CONTACT
6F	[RD1]C-SPRING
8F	[RD1]E-LUG-S
5E	[BL]C-SPRING
4D	[GN]CONTACT
6D	[GN]C-SPRING
7D	[GN]E-LUG

D1700 5.6V AV2_LR_ZENER · R1700 470K AV2 · C1701 1000PF 50V OPT · R1716 10K AV2 · R1718 12K AV2 · AV2_R_IN

D1701 5.6V AV2_LR_ZENER · R1701 470K AV2 · C1702 1000PF 50V OPT · R1717 10K AV2 · R1719 12K AV2 · AV2_L_IN

+3.3V_Normal · R1708 10K AV2 · R1711 1K AV2 · AV2_CVBS_DET

D1702 5.6V OPT

D1713 AV2_CVBS_ZENER_ROHM · D1714 AV2_CVBS_ZENER_ROHM · R1702 75 AV2 · C1703 47pF 50V AV2 · AV2_CVBS_IN

D1713-*1 AV2_CVBS_ZENER_KEC · D1714-*1 AV2_CVBS_ZENER_KEC

D1704 5.6V COMP_LR_ZENER · R1703 470K · C1704 1000PF 50V OPT · R1714 10K · R1720 12K · COMP2_R_IN

D1705 5.6V COMP_LR_ZENER · R1704 470K · C1705 1000PF 50V OPT · R1715 10K · R1721 12K · COMP2_L_IN

+3.3V_Normal · R1709 10K · R1712 1K · COMP2_DET

D1706 5.6V OPT

D1703 COMP_Pr_ZENER_ROHM · D1707 COMP_Pr_ZENER_ROHM · R1705 75 · COMP2_Pr+

D1703-*1 COMP_Pr_ZENER_KEC · D1707-*1 COMP_Pr_ZENER_KEC

D1708 COMP_Pb_ZENER_ROHM · D1710 COMP_Pb_ZENER_ROHM · R1706 75 · COMP2_Pb+

D1708-*1 COMP_Pb_ZENER_KEC · D1710-*1 COMP_Pb_ZENER_KEC

+3.3V_Normal · R1710 10K · R1713 1K · AV_CVBS_DET

D1709 5.6V OPT

D1711 COMP_Y_ZENER_ROHM · D1712 COMP_Y_ZENER_ROHM · R1707 75 · R1722 0 · COMP2_Y+/AV_CVBS_IN

D1711-*1 COMP_Y_ZENER_KEC · D1712-*1 COMP_Y_ZENER_KEC

+3.3V_Normal

CVBS_TEST IC1708 MM1756DURE
VCC 6 · PS 5 · OUT 4 · IN 1 · GND 2 · BIAS 3

CVBS_TEST C1706 0.1uF · CVBS_TEST C1707 0.1uF · DTV/MNT_VOUT

CVBS_TEST R1723 75

CVBS_TEST C1708 1uF

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MODEL	NC4_S7LRM	DATE	2012.08.14
BLOCK	REAR_NON_EU_L	SHEET	17

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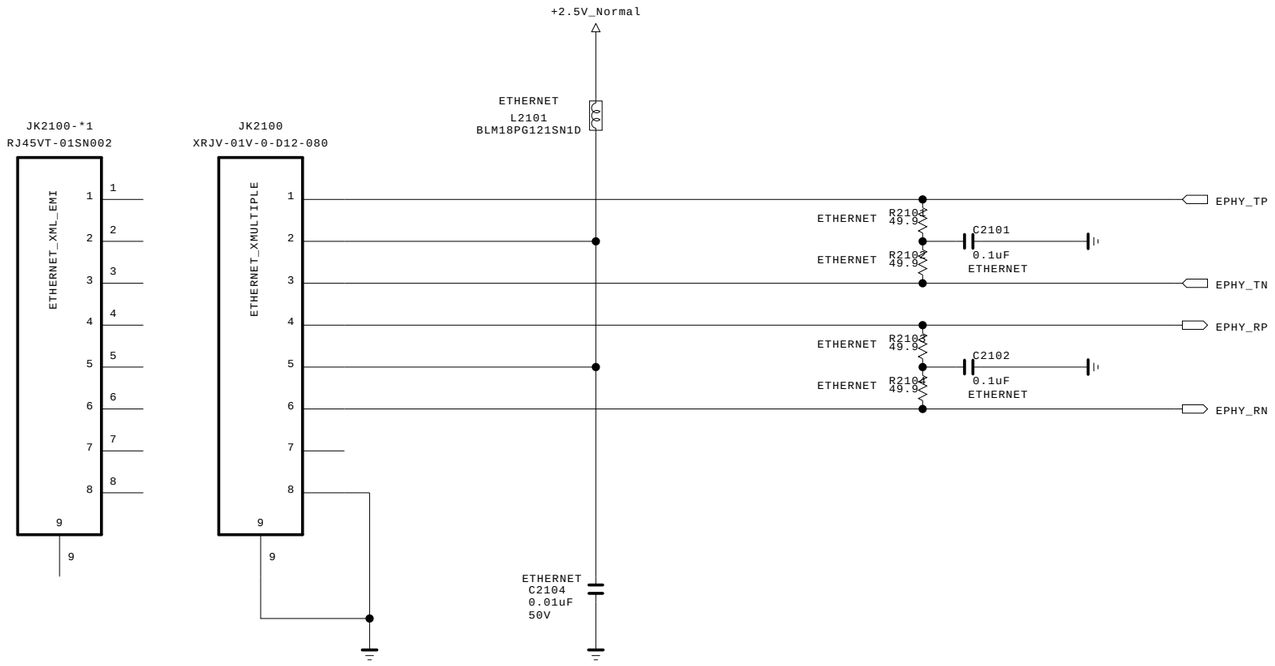
ETHERNET

* H/W option : ETHERNET



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MODEL	NC4_S7LRM	DATE	2012/06/21
BLOCK	LAN	SHEET	21 /

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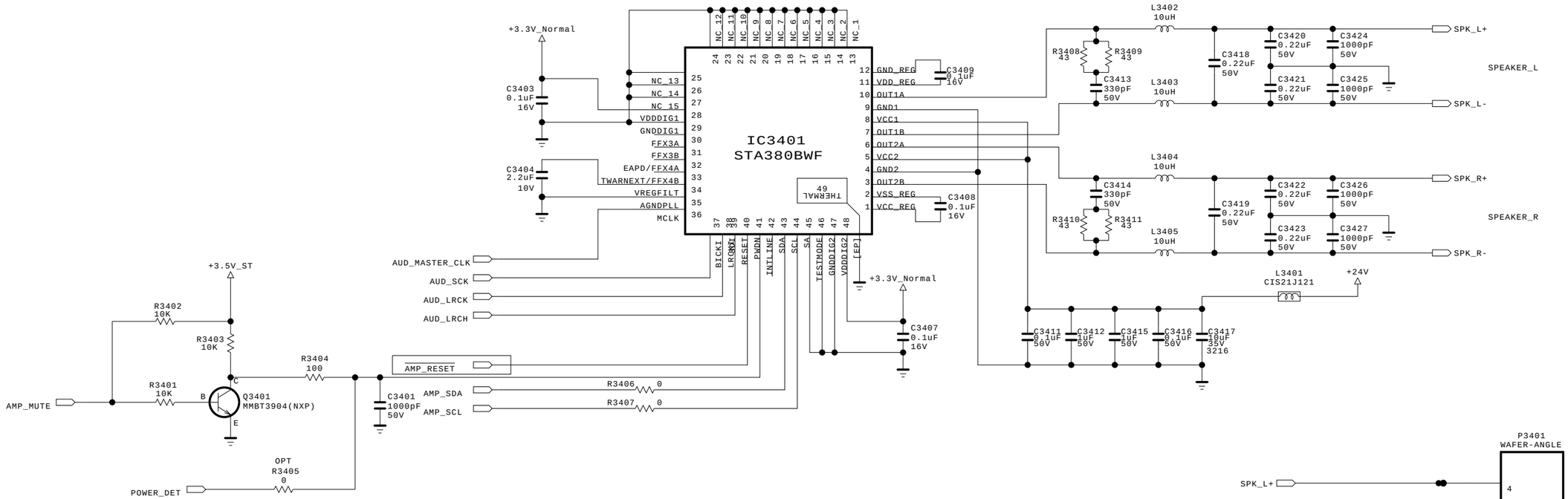
AUDIO AMP(STA380BWEF)



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MODEL	NC4_S7LRM	DATE	2012/08/29
BLOCK	AMP_STA380BWEF	SHEET	34

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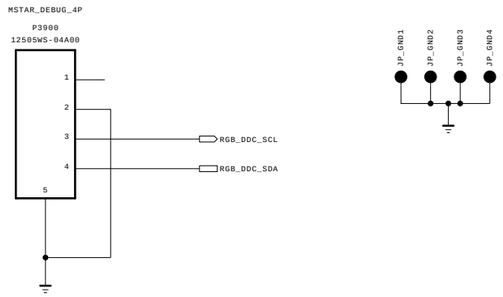
MSTART DEBUG_4PIN



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MODEL	NC4_S7LRM	DATE	2012/06/20
BLOCK	MSTAR DEBUG_4PIN	SHEET	39

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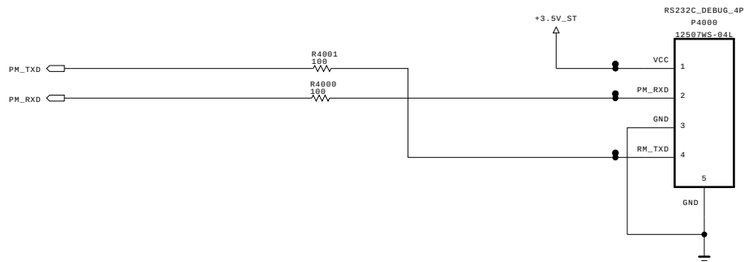
RS-232C



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MODEL	NC4_S7LRM	DATE	2012/06/20
BLOCK	RS232C_4P_OS	SHEET	40 /

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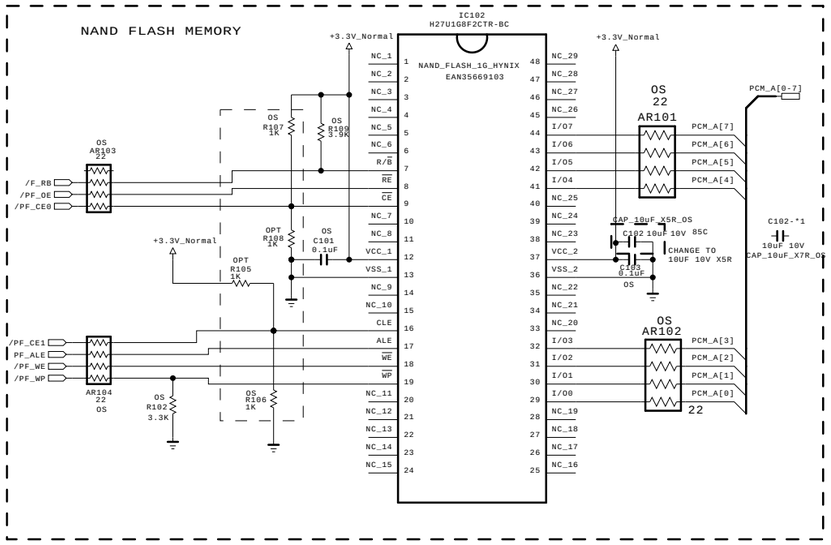
NAND FLASH MEMORY

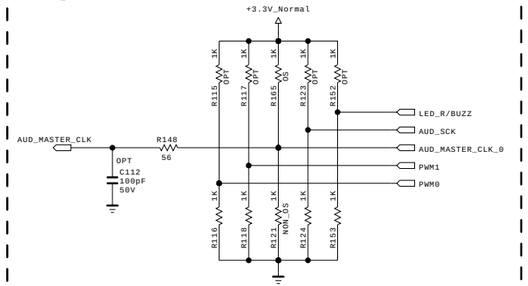


<CHIP Config(LED_R/BUZZ)>

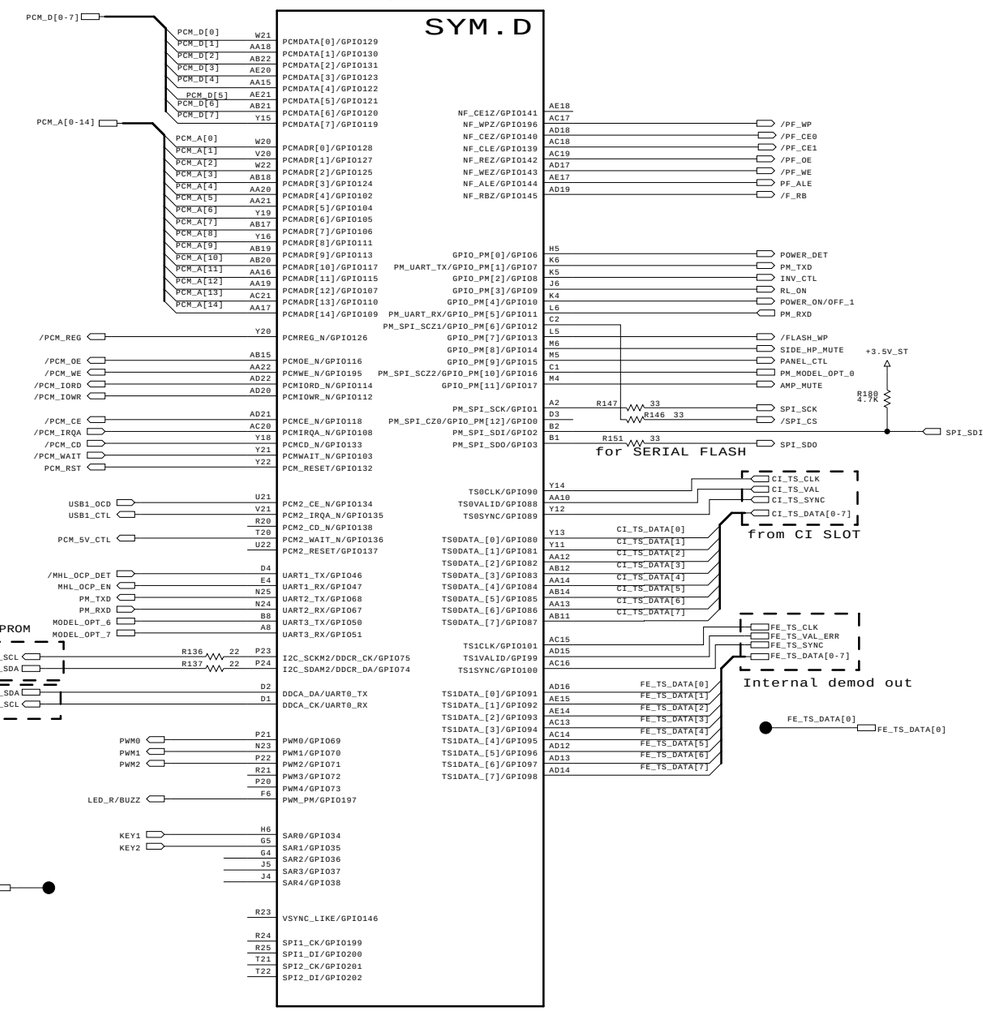
Boot from SPI CS1N(EXT_FLASH) 1'b0
Boot from SPI_CS0N(INT_FLASH) 1'b1

<CHIP Config>
(I2S_OUT_BCK,I2S_OUT_MCK,PAD_PWM1PAD_PWM0)

B51_no_EJ	: 4'b0000	Boot from 8051 with SPI flash
SB51_WOS	: 4'b0001	Secure B51 without scramble
SB51_WS	: 4'b0010	Secure B51 with scramble
MIPS_SPE_NO_EJ	: 4'b0100	Boot from MIPS with SPI flash
MIPS_SPI_EJ_1	: 4'b0101	Boot from MIPS with SPI flash
MIPS_SPI_EJ_2	: 4'b0110	Boot from MIPS with SPI flash
MIPS_WOS	: 4'b1001	Secure MIPS without scramble
MIPS_WS	: 4'b1010	Scerur MIPS with SCRAMBLE



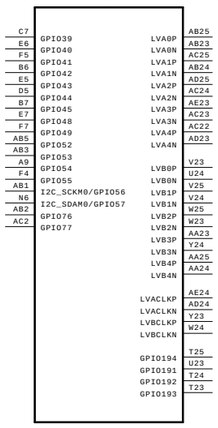
S7LR-M_NON_MS10
IC101
MSD804KKX



S7LR-M Multi Package

S7LR-M_MS10

IC101-*1
LGE2121-MS (M1_L13_MS10)

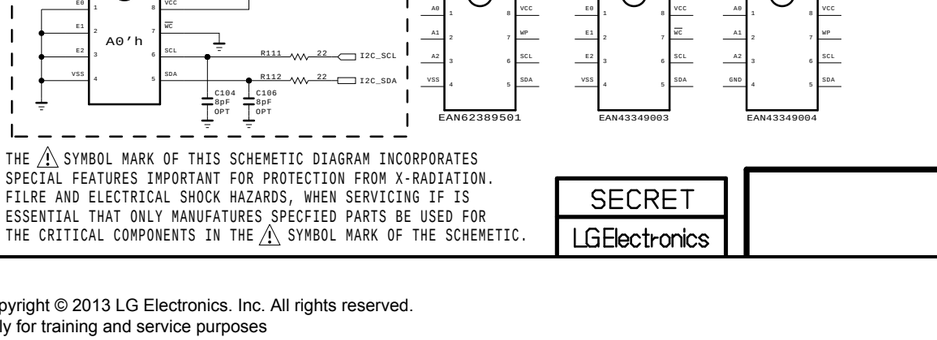


NAND_FLASH_2G_HYNIX
EAN60708702
IC102-*1
H27U2G8F2CTR

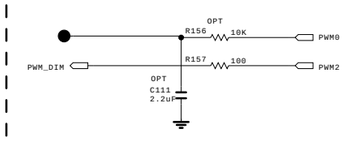
NAND_FLASH_1G_TOSHIBA
EAN61508001
IC102-*2
TC58NVG0S3ETA0BBBH

NAND_FLASH_2G_TOSHIBA
EAN60991001
IC102-*3
TC58NVG1S3ETA00

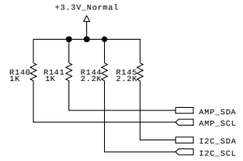
NAND_FLASH_1G_SS
EAN61857001
IC102-*4
K9F1G08U0D-SCB0



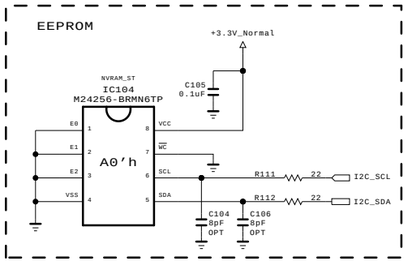
DIMMING



I2C



EEPROM

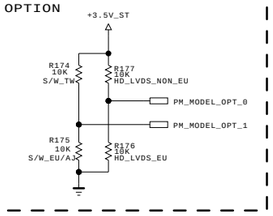


NVRAM_RENESAS
IC104-*1
R1EX24256BSAS0A
EAN62389501

NON_OS_512k_ST
IC104-*2
M24512-RMN6TP
EAN43349003

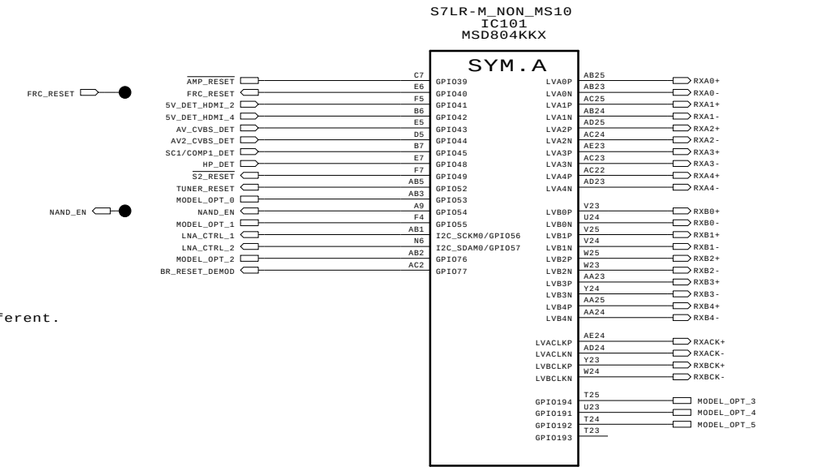
NON_OS_512k_ATMEL
IC104-*3
AT24C512C-SSHD-T
EAN43349004

PM MODEL OPTION



PM_MODEL_OPT_0
HIGH : HD_NON_EU
LOW : HD_EU
HD_LVDS_pattern is different.
Between EU and NON_EU
PM_MODEL_OPT_1
HIGH : S/W_NON_EU
LOW : S/W_EU/AJ
S/W is different.
Between TW

S7LR-M_NON_MS10
IC101
MSD804KKX



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MODEL	NC4_S7LRM	DATE	2012/09/19
BLOCK	MAIN1_NON_EU	SHEET	51

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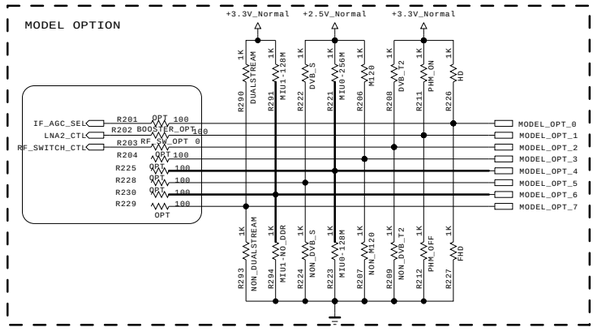
MODEL OPTION

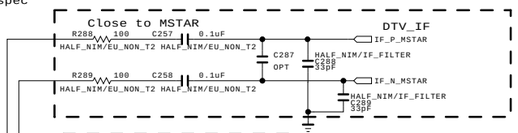
PIN NAME	PIN NO	LOW	HIGH
MODEL_OPT_0	AB3	FHD	HD
MODEL_OPT_1	F4	PHM_OFF	PHM_ON
MODEL_OPT_2	AB2	NON_DVB_T2	DVB_T2
MODEL_OPT_3	T25	NON_M120	M120
MODEL_OPT_4	U23	MIU0-128M	MIU0-256M
MODEL_OPT_5	T24	NON_DVB_S	DVB_S
MODEL_OPT_6	B8	MIU1-NO_DDR	MIU1-128M
MODEL_OPT_7	A8	NON_DUALSTREAM	DUALSTREAM

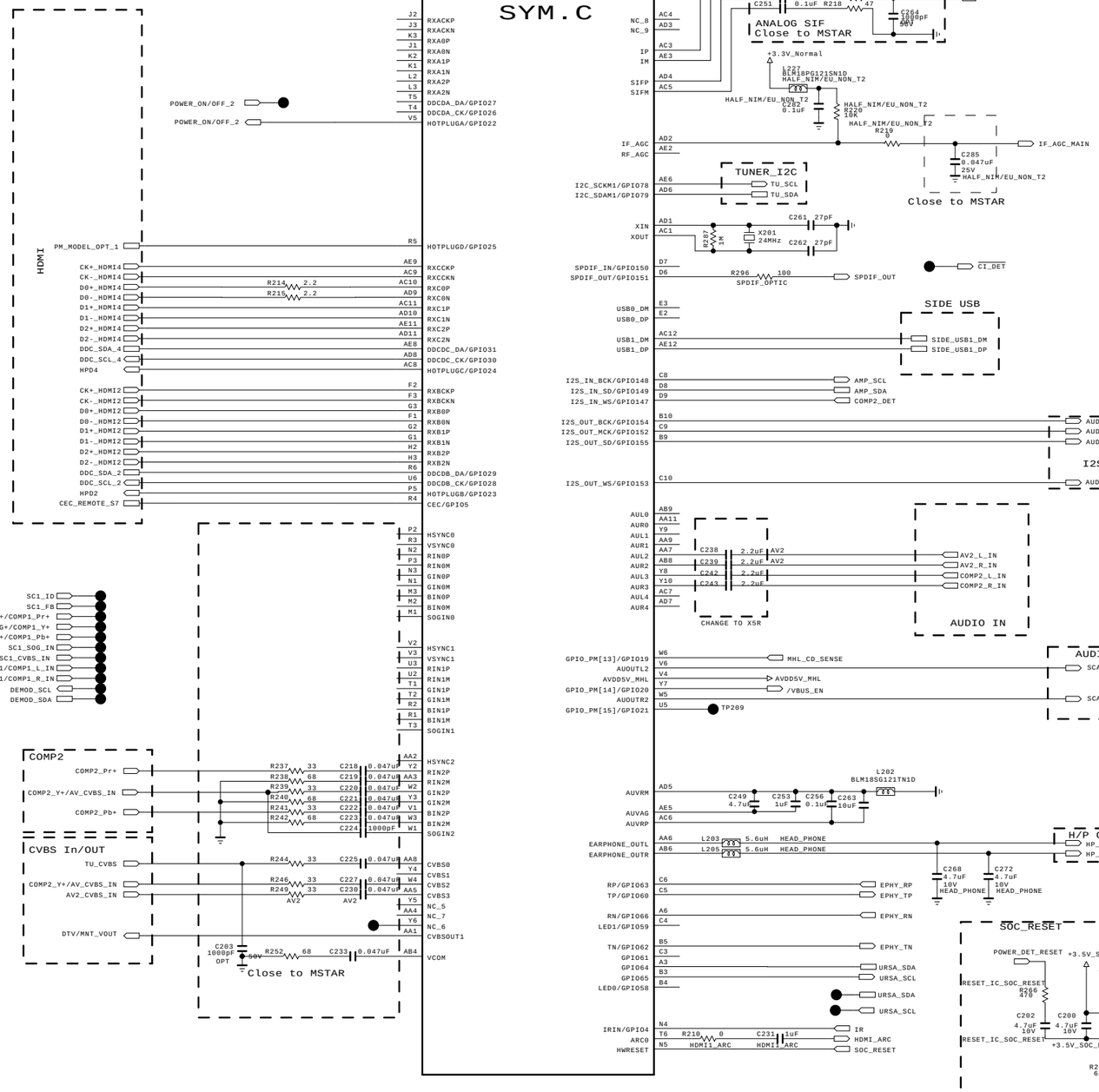
* Dual Stream is only Korea 3D spec

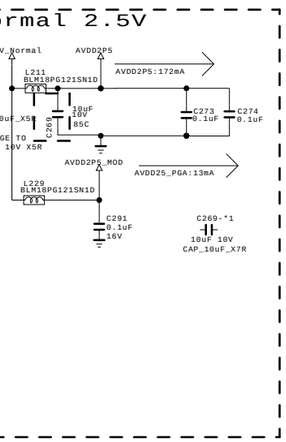
Memory OPTION

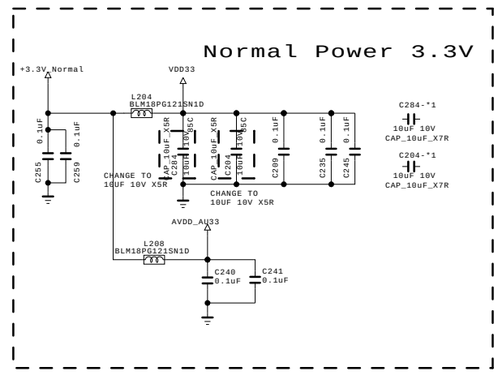
Memory	MODEL_OPT_4 PIN NO.U23	MODEL_OPT_6 PIN NO. B8	Note
128M	0	0	
128M+128M	0	1	
256M	1	0	
256M+128M	1	1	Ginga

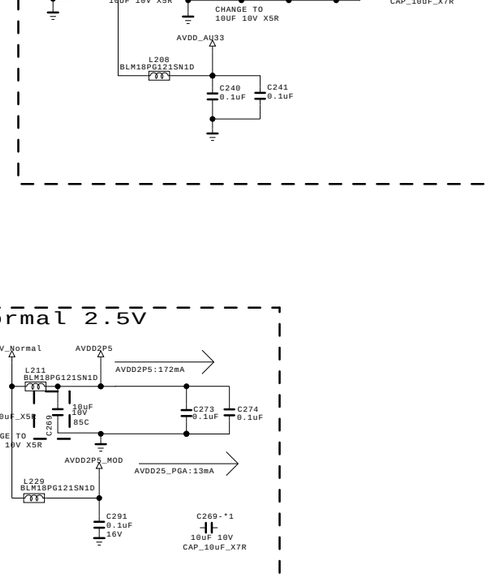


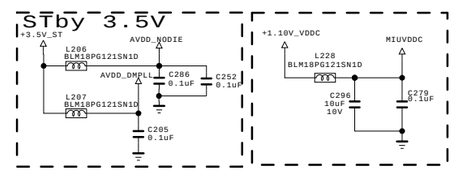


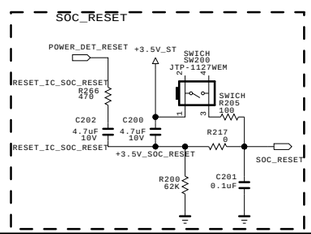


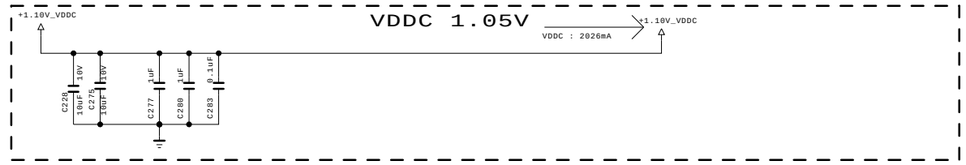


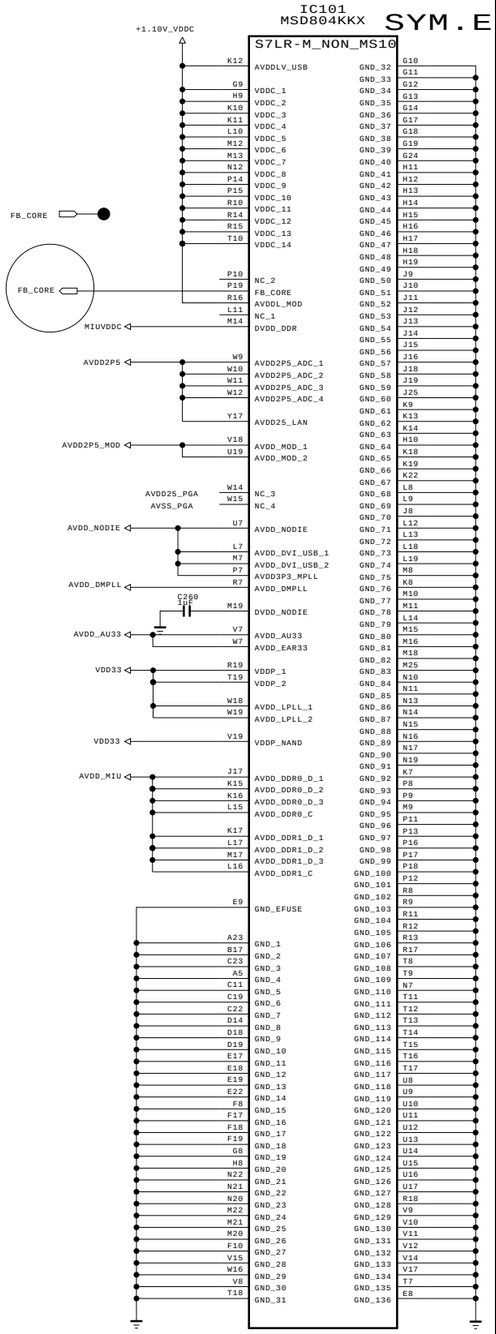












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MODEL	NC4_S7LRM	DATE	2012.09.19
BLOCK	MAIN2_NON_EU	SHEET	52

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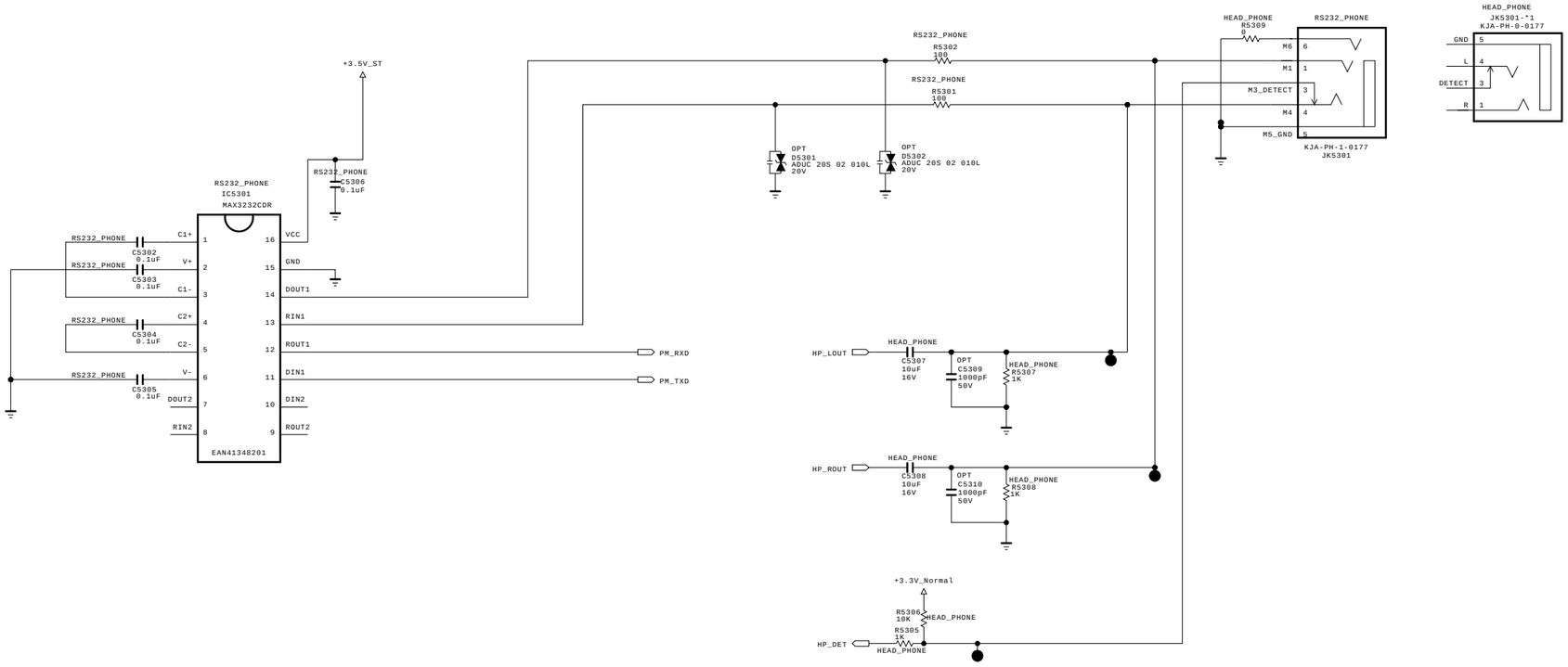
RS-232C



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MODEL	NC4_S7LRM	DATE	2012/06/21
BLOCK	RS232C_PHONE	SHEET	53

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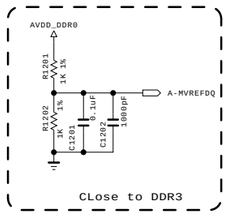
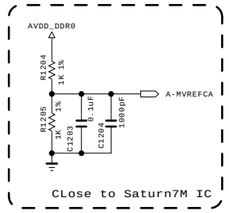
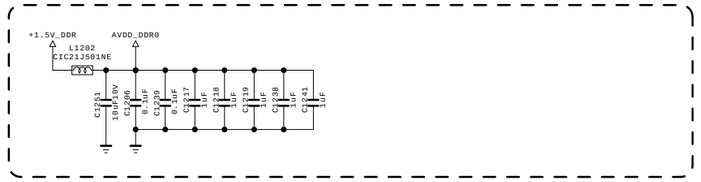
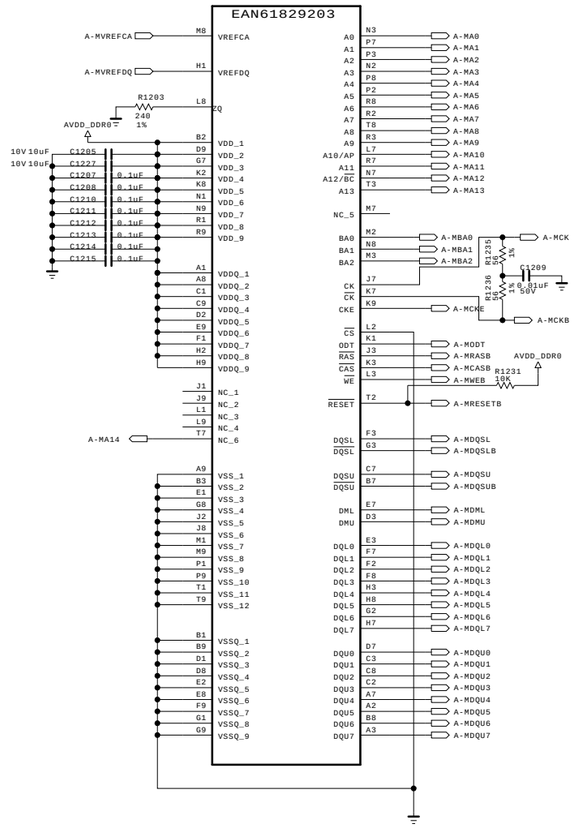




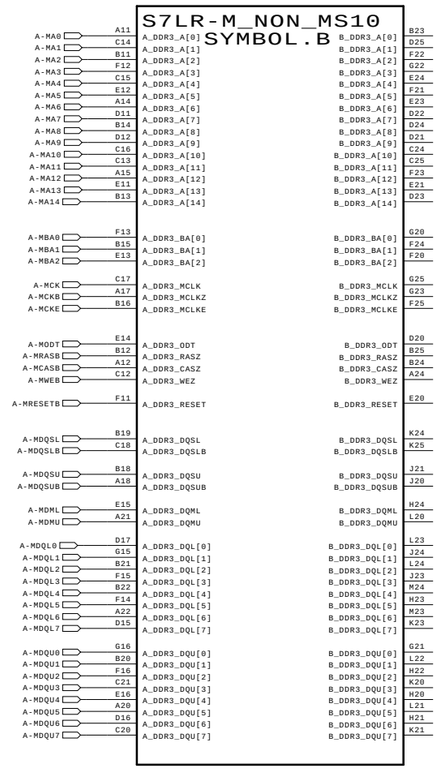


DDR_1600_2G_HYNIX

IC1201
H5TQ2G63DFR-PBC
EAN61829203

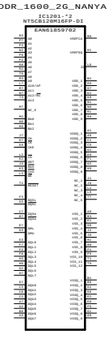


IC101
MSD804KKX



DDR_1600_2G_SS
IC1201-*1
K4B2G1646E-BCK0
EAN61848802

DDR_1600_2G_NANYA
IC1201-*2
NT5CB128M16FP-DI
EAN61857702



DDR_1600_1G_HYNIX
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EAN61829003

DDR_1600_1G_SS
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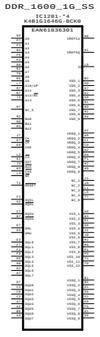

DDR_1600_1G_NANYA
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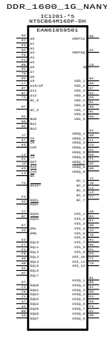
EAN61859503



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MODEL	NC4_S7LRM	DATE	2012/06/21
BLOCK	M1_DDR (1DDR)	SHEET	54

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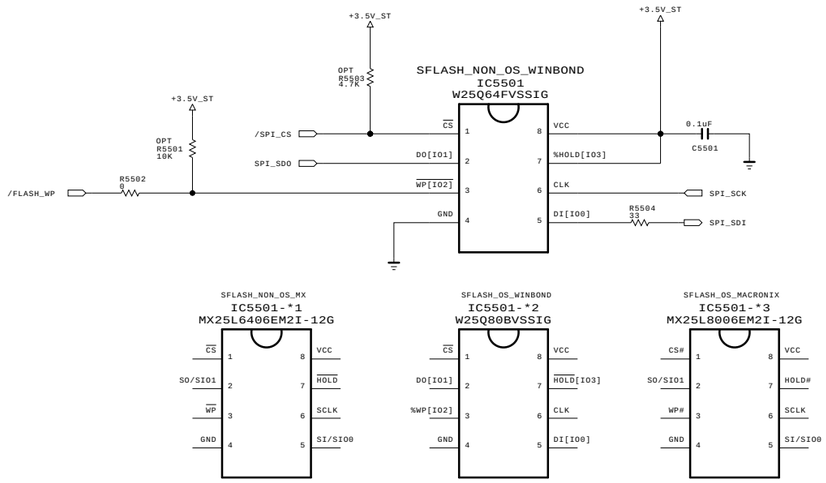
Serial Flash for SPI boot_NON_OS



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MODEL	NC4_S7LRM	DATE	2012.06.21
BLOCK	S_FLASH_NON_OS	SHEET	55

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